THE NEW SOCIAL SCIENCE

LEONARD D. WHITE, *Editor*

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THE SOCIAL SCIENCE STUDIES are an expression of community of interests of the social sciences. The publication of these Studies is one of the results of a comprehensive program of research which has been undertaken by a group or conference of departments. The formation of this conference is an outgrowth of the belief that the social sciences should engage more actively and systematically in co-operative consideration of their problems and methodology. This does not imply any diminution of interest in the development of their special fields. The Studies, therefore, are to include the results of scientific investigations usually associated with the fields of each of the participating departments. But they will also include the results of joint investigations of several or all of these departments as well as studies in related fields.

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THE NEW SOCIAL SCIENCE

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LEONARD D. WHITE, PH.D.
Editor

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FOREWORD

The dedication of the Social Science Research Building at the University of Chicago on December 16 and 17, 1929, furnished the occasion for the delivery of the addresses which are contained in this book. The dedication ceremonies also provided opportunity for assessing the achievements of the Local Community Research Committee, whose activities occupy this building, and for pausing to take thought concerning the future of research in social science, not only here but elsewhere.

To record the experience and achievements of the Chicago research group there was recently published a volume entitled, *Chicago: An Experiment in Social Science Research.*[1] To look forward from the positions now occupied, the University of Chicago invited a distinguished group of scholars from this and other countries to participate in a two-day symposium. To these scholars the University expresses its gratitude for preparing the papers delivered at the dedication and here presented to our colleagues in other universities.

These addresses have a degree of unity, although they can hardly be characterized as systematic. By way of compensation they gain richness in content by their variety and scope, notably in the contributions from Sir William Beveridge, Professor Célestin Bouglé, and Professor Albrecht Mendelssohn Bartholdy.

One derives a full sense of the breadth of interest of contemporary social science from a perusal of the following pages. Merriam's and Wilson's analysis of the rela-

[1] T. V. Smith and L. D. White, editors (University of Chicago Press, 1929).

tion of the natural to the social sciences, Winternitz's discussion of the relation of medicine to the social sciences, the challenging directness of Herrick's analysis of the respective rôles of the humanities, the social sciences, and scientific method leave no doubt that the social sciences at least are prepared to seek light from any section of human knowledge. The turn of the tide foreshadowed by Charles E. Merriam's *New Aspects of Politics* is evidently at hand.

Here, too, the reader will find thoughtful observations on methods in the social sciences, and full recognition of the respective rôles of free ranging, intuitive, and inventive thought, on the one hand, and patient, systematic, and minute assembly of facts, on the other, as well as pointed observations on the inner nature of genuine co-operative research.

These papers, in the particular setting in which they were delivered, testify abundantly to a feeling of confidence among social science researchers; confidence not so much in results achieved as in prospects. As President Hutchins observed in his dedication address, "If we can make progress at all, we can make it now."

It is with the desire to make progress now, and rapidly, that the Local Community Research Committee presents these papers to fellow-researchers in the social sciences in this and other countries.

LEONARD D. WHITE

February 12, 1930

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ADDRESS OF DEDICATION

ROBERT M. HUTCHINS

An eminent social scientist, William Graham Sumner, used to ask his classes three questions on any topic: What is it? Why is it? What of it? It is appropriate that the eminent social scientists of more recent vintage now assembled here should ask us these questions about the building we dedicate today. What is it? A building for research in the social sciences; for research only; and for co-operative research. Why is it? Because of the contributions that had been made by the social science group at Chicago, because they had shown their capacity in research and in co-operation, and because the Laura Spelman Rockefeller Memorial, which in its brief but brilliant career did more than any other agency to promote the social sciences in the United States, believed them capable of still more effective work if they were housed in a building that gave them facilities that would permit it. What of it? This building means that social scientists at Chicago have an opportunity and an obligation. If co-operative social research is possible at all on a large scale, it should be possible here and now. If social research has value, it should be revealed under conditions so favorable as these. If the type of organization of the social sciences here is useful, that should be made plain; for no physical difficulties stand in the way of success. If this building does not promote a better understanding of our society, we shall know that there is something wrong with the social sciences or something wrong with us; for here for the first time

everything that can serve the social investigator is ready to his hand. If he cannot make progress now, he never can. The building is then in the nature of an experiment, a test case, to determine whether with such facilities in such an atmosphere we may more rapidly work out the problems that confront us.

And that is the importance of the building to social scientists everywhere. The social sciences are now on the crest of a wave which we hope will be permanent. Last week a university president was asked the meaning of his law school's program. "It means," he said, "that the lawyer will become a social scientist." Such a statement, which now calls forth nothing but applause, would have been greeted ten years ago with howls of derision. When the time has come that the ranks of social science are regarded as the lawyer's paradise, to which the legal luminary may only by slow, painful, and laborious steps attain, it is clear that the popular attitude toward social science has changed. Nor is this change confined to my former associates in the law schools. Last spring the dean of an important medical school announced that medicine was a social science, and developed a program calling for the addition of sociologists to his staff. This quite universal attempt to find places on the band-wagon of the social sciences is produced first, I think, by their new-found wealth. Departments are no exception to the rule that the prosperous form friendships to which the poor cannot aspire. But there is a less superficial reason. On the one hand, students of individuals in the hospital and the court have come to understand that there is no such thing as an individual cut off from society. On the other, the social scientists have turned from speculation to an examination of the activities of living people. So everyone who

is interested in people comes to see that the social sciences have something of interest to him, and in some cases to feel that he may have something to contribute to the social sciences. This process will continue. The social scientists at Chicago will increasingly take account of groups with which their connection has hitherto been slight—in particular, biology, medicine, education, law, psychology, and divinity; otherwise the experiment in co-operation remains partial and inconclusive. And this co-operation will make itself felt in the education of research men, of teachers, and perhaps even of undergraduates. We may look forward to the unification of educational activities as the inevitable result of unification of research activities. Scholars who are now belatedly struggling to give themselves a familiarity with related fields will hardly wish to impose the handicap of the kind of education they had upon those whom they are preparing to come after them. They will wish them to acquire degrees in the social sciences broadly interpreted rather than in disciplines which though no longer isolated in research are still disparate in education.

In this way we may constantly broaden our conception of the social sciences, and may eventually produce a kind of scholar who does not need to be converted to this point of view or does not have to learn at the end of his career what should have been pointed out to him at the beginning. We begin today, therefore, an experiment in co-operation, an experiment in research, an experiment in education, all resulting from an experiment in housing. With gratitude for the generosity that has made it possible, with honor to those whose abilities it honors, with the hope that from it may come contributions to the understanding of human problems, we dedicate this building.

RESEARCH IN THE SOCIAL SCIENCES

WESLEY C. MITCHELL

I

To all concerned with the social sciences, or aware of what they promise to mankind's future, the dedication of a building to research in these fields is an occasion for thanksgiving. One of the ablest bands of inquirers into human behavior is here provided with technical equipment of unequaled excellence. Not less important, the University plans to give these investigators full opportunity to use the building. What mechanical facilities, clerical assistance, and time to think can do toward helping thought is here offered more abundantly than elsewhere. The fortunate workers who profit immediately by these opportunities will promote the efforts of their colleagues wherever research in the social sciences is going forward. In years to come, men may look back upon the ceremony in which we are now sharing with much the feeling we now cherish for the opening of Liebig's chemical laboratory at Giessen, 103 years ago—a brief interval in the history of human culture.

To one who was himself trained for research in a social science at the University of Chicago, the occasion has a heightened interest. When good fortune brought me here in the early 1890's as an undergraduate student, Chicago was, I fondly believe, the most stimulating school of social science then to be found in any land. The apprentice in economics who could pass through Laurence Laughlin's hands without being provoked to think for himself was a flabby specimen. From Adolph Miller's

balanced expositions he caught glimpses of the order which might reign in a rational world. If William Hill could not make him feel vital interests throbbing through the issues which economists discuss, no man could do so. Then there was the disturbing genius of Thorstein Veblen—that visitor from another world, who dissected the current commonplaces which the student had unconsciously acquired, as if the most familiar of his daily thoughts were curious products wrought in him by outside forces. No other such emancipator of the mind from the subtle tyranny of circumstance has been known in social science, and no other such enlarger of the realm of inquiry. From Veblen's philosophic view of social institutions and social theories a straight path led to John Dewey's lectures. There the man interested in any phase of human behavior heard a master of philosophy and psychology analyze the processes involved in activities, from dealing with a broken shoestring to constructing a system of metaphysics. Not less effectively than Veblen, though with a different emphasis, Dewey helped an economist to drag the psychological preconceptions lurking behind theories of value and distribution into consciousness, and to see how they stood the light of current knowledge. It was indeed a varied opportunity which these teachers offered, and a varied program of researches which they incited students to undertake.

For, widely as they differed in their approaches to the study of social behavior, all these men made one eager to share in the work of learning more. Professor Laughlin revered the body of economic doctrine expounded by Mill and revised by Cairnes; but year after year he gave a course upon "Unsettled Problems in Political Econ-

omy," and there was no more insatiable searcher after facts than he among the special students of monetary problems. On Veblen's showing, the social sciences must be rebuilt altogether in a different style of architecture, for which Darwinian biology supplied the model. And Dewey's analysis of thinking was scarcely less revolutionary when applied to economic behavior than Veblen's analysis of the cumulative growth of economic institutions. In this exciting atmosphere the students became ardent investigators and cross-fertilized each other. Henry Stuart and Parker Willis, Robert Hoxie and Herbert Davenport, Harry Millis and Edwin Meade, Frederick Cleveland, S. J. McLean and Mackenzie King—to name only a few of my own contemporaries—these men covered a wide range, and even in their student years several of them made contributions to knowledge which became part of the working equipment of economics.

It is, then, quite in accord with her own tradition that the University of Chicago should become the seat of the first building dedicated wholly to research in the social sciences. For that tradition looked forward to fresh developments, rather than backward to the accomplishments of the past. To transcend what was then in the program was part of the program itself. In particular, two deficiencies in our equipment for research became clearer as the years passed. We had no adequate training in statistical technique in the 1890's, and workers in the several departments of social science did not value each other aright. These weaknesses were common at that time; they did not then impress a student's mind as serious, though now it seems that the logic of what he was doing should have made them clear.

II

Factual research was the breath of our nostrils in the department of economics. We speculated a great deal about what would happen under all sorts of hypothetical conditions. That was good sport. We took much more seriously the effort to find out how processes run in the actual world. In the course of these efforts we had often to deal with statistics. But we did not know how to get from our data any but obvious results. Our most ambitious ventures scarcely went beyond making index numbers of prices by very simple formulas. In the technique of statistical analysis we had virtually no instruction—a deficiency which I, for one, have never overcome. Yet this is the very tool which our interest in what we called, after the quaint fashion of that day, the "inductive verification" of economic theory should have led us to master. So far as I know, the other social science departments were no better equipped than economics in this respect.

Subsequent developments have shown how lacking in prescience we were. As society has become more highly organized, practical needs have forced business enterprises and governments of all grades to seek ever more varied and ever more precise information for the guidance of their policies. The wider the scope of an organization's activities, the less can its responsible officers know at first hand of the conditions which it must meet, the less safe it is to depend upon native shrewdness, the more necessary it becomes to have definite reports as a basis for action. Hence the collection of systematic information concerning social activities has grown apace in the last generation. Our old statistical data concerning prices, money, banking, foreign trade, transportation, production, pop-

ulation, migration have been greatly extended and improved. To them has been added much fresh information concerning topics about which we could do little but guess in my student days, such as retail trade, wage-disbursements, employment, stocks of commodities, personal incomes, business profits, velocity of circulation, morbidity, and a long list of other matters.

Many of the data which practical needs have forced men to collect are published and so become available to scientific students of human behavior. Thus political scientists, sociologists, and economists have had opened to them opportunities for large-scale observation such as no earlier generation possessed. Where their predecessors had been able merely to speculate, present workers are able over an expanding range to observe with increasing accuracy. Like sensible men, they have seized this opportunity to advance their knowledge as rapidly as possible from the stage of speculations about hypothetical conditions to the higher stage of quantitative analysis of actual conditions.

To make the most of statistical data, however, the social science workers have had to master a new technique. A century earlier mathematicians had developed the theory of probability with many ingenious variations. Demographers, anthropologists, and biologists had adopted mathematical methods in the analysis of their own observations upon living objects, from plants to human bodies. It seemed a relatively simple matter to borrow the tools thus forged by others for use in the social sciences. But it was found, none too quickly, that social data often fail to meet the suppositions underlying the theory of probability and its biological applications. The problems of social behavior presented features pe-

culiar to themselves, and it became necessary to adapt statistical procedure to these novel requirements. Hence attempts to use borrowed tools turned out to be but the first steps in a long process of developing a technical equipment especially suited to the varied tasks which sociologists, economists, and political scientists confront. Among all the efforts of the last quarter-century in the social sciences, none has been pushed with more vigor and success than the excogitation of this statistical technique—a task which is still in full swing.

This development has produced a marked change in the conditions which our work requires. A political scientist concerned with the theory of the state or an economist dealing with problems of static equilibrium has little need of assistance. What he requires is a vigorous mind, a library, and leisure. The quantitative worker needs just as clear a mind, at least as much leisure, and as many books; in addition, he needs for many of his researches a great deal of help from statistical clerks and computers, and these assistants should be provided with machines. How genuine this need is has been shown by the establishment of numerous institutes for research in the social sciences—organizations which have grown up largely outside of university walls, because the universities have not been able, or ready, to provide the facilities which research men have come to require. Much of the most significant work of the last decade has been done in such institutes. They have been the only places where elaborate quantitative work could be done. Of late the universities have awakened to the need and begun to provide statistical laboratories, primarily for training students, but also in part for conducting research. Most of these laboratories, however, serve but

a single department or a school of business. Chicago is now advancing farther, according to her wont. Not only is this building the most admirably equipped of social science laboratories; it is also reserved exclusively for research, and in the planning of the work to be done here all the social science departments are joining as in a common venture.

III

That remark recalls the second deficiency which the social science work of the 1890's exhibited in Chicago—lack of a common understanding among the several departments concerned with "the proper study of mankind." Like our lack of statistical training, this deficiency also was a sin against the spirit of our program. Indeed, our two philosophers, Veblen and Dewey, were showing the error of our ways. More than that, they were building a platform on which the different departments might conduct a fusion campaign.

It was impossible to fit Veblen into a department pigeonhole—he seemed to be economist, anthropologist, sociologist, social psychologist, and political scientist by turns. For his problem—how cumulative changes come about in social habits of thinking—is one which admits of no such sharp divisions as administrative convenience and the progress of specialization had raised within our universities. And Veblen's learning was wide enough to embrace those parts of all the social sciences which were most pertinent to his problem. One cannot understand the evolution of social institutions if he confines himself to any single specialty.

With equal vigor John Dewey's philosophy called for co-operation among all the social sciences. In analyzing

the processes involved in man's varied activities, he showed us how psychology illuminates the problem of social behavior. But his analysis made it clear that the psychologist alone cannot solve this problem. For on Dewey's showing, the minds of the members of every social group are shaped by the environment in which they have developed, and the most potent environmental factors in shaping minds are other minds. One of Dewey's favorite sayings, "There is no psychology but social psychology," suggests how large and how active is the rôle which the social sciences must themselves play in mankind's cumulative effort to know itself. The old notion that a science like economics can borrow a few ready-made conclusions about human motives from psychology, and on this foundation erect a towering theory of value and distribution, gave place to the realization that economics must recognize that it is a constructive study of human behavior, making its own peculiar contributions to the knowledge of social behavior. The like holds true of all the social sciences. They have a common problem and a common working program.

How influential Dewey's teaching and Veblen's example have been in breaching the walls which separated the social sciences in the 1890's I do not know. Perhaps these men merely glimpsed a little earlier than others views which soon dawned upon many. A historian of thought might even trace the recent reunion among the social sciences back to the great group of philosophical radicals who, in the lifetime of Jeremy Bentham, worked over the whole range from jurisprudence and psychology to economics and adult re-education. Perhaps we should say that while the several disciplines drew apart from each other during a phase of intense specialization, it

was inevitable that they should grow together again along their edges as specialization spread out from the original centers over wider areas. However we explain the process, there can be no doubt that recently the social sciences have become more aware of their common interests and their need for active co-operation.

Evidences of the *rapprochement* abound in this country at least. Half a dozen books have appeared in the last five years designed to interpret the several social sciences to one another. It suffices to name one by way of example, *The Social Sciences and Their Interrelations*, written by thirty-three specialists running the gamut from philosophy to law, and edited by William F. Ogburn and A. A. Goldenweiser. Within a month or two there will be published the first volume of an *Encyclopaedia of the Social Sciences*, edited by Edwin Seligman and Alvin Johnson, to be followed at intervals by fourteen other volumes. Equally significant is the active cultivation of border lands between the several disciplines —work which requires a pair of names, like legal economics, human geography, cultural anthropology, social history, social psychology, social ethics. Several research agencies have been set up with staffs recruited from two or more of the social sciences—like the Brookings Institution in Washington, the Institute of Law at Johns Hopkins, the Institute of Human Relations at Yale, the Institutes for Research in the Social Sciences at the universities of North Carolina and Virginia. Finally, the professional associations of the United States representing seven social disciplines united in 1923 to form a national organization for promoting their common interests—the Social Science Research Council. In this council psychologists, anthropologists, sociologists, po-

litical scientists, economists, statisticians, and historians seek to combine the contributions which their several sciences may make to the understanding of social problems. Nor do they think that this combination is sufficiently comprehensive; for this year they have added to the Council members at large to represent jurisprudence, public health, and psychiatry.

Dewey and Veblen left Chicago years ago; but the ideas for which they stood remained. The Social Science Research Council looks upon Charles E. Merriam as its father, and no man represents more authentically than he the Chicago viewpoint. This University was one of the first to set up an interdepartmental organization for treating social problems—the Local Community Research Committee, established in 1923. The building which we are now dedicating to research in the social sciences is thus but the physical embodiment of ideas which have flourished here since the 1890's—ideas on which we did not then know how to act, and on which we find it very difficult to act even now.

For men of my generation were brought up as specialists. We have developed the limitations of outlook, technique, and information which specialization inflicts as an offset to its marked advantages. If you wish to see how hard we find the task of self-re-education, read the book which I mentioned a moment since, *The Social Sciences and Their Interrelation.* You will find that even the collaborators whom Ogburn and Goldenweiser chose for their open-mindedness do not really interpenetrate each other's minds very thoroughly. Great tasks can seldom be performed in short order, and the task of developing a common program for all the social sciences, without losing the efficiency which specialization brings,

is not one which the present generation of adult workers can see through. Perhaps our most fruitful contributions toward this end are the organizations which we are setting up to bring men of different specialties together in the planning of research. The Social Science Research Council and the similar councils which are springing up in numerous universities require their members at frequent intervals to look at research problems from the viewpoints of men whose training and interests are unlike their own. The plan for managing this Social Science Research Building will put a similar wholesome pressure upon the Chicago group. We may well expect that in consequence the social science men in this University will make especially rapid progress toward the intellectual co-operation which the study of human behavior requires.

IV

An old Chicago man can congratulate most warmly the Chicago men of today upon the fair prospects stretching before them in the field of social science. They will not be handicapped by inadequate training in statistical technique or cut off from each other by departmental walls. The points at which the University was once weak have become points at which it is exceptionally strong.

But with his congratulations upon these changes, an old student must combine the hope that the traits which made Chicago such a stimulating mother to his kind in the 1890's may persist in the more elaborately equipped university of today and tomorrow. Statistics is a most efficient tool; we must use it with all the skill and energy we can muster. Co-operation among the social sciences is admirable; we must transform it from an aspiration

into a working reality. Yet no one supposes that technical proficiency and a wide range of contacts suffice to make significant discoveries. There must be also the philosophic grasp and the ability to see with one's own eyes which distinguish men like the inspirers of research who shed luster upon Chicago in my day. What counts most of all in scientific work is that free play of ideas which we understand so little, but from which emerge at rare moments the flashes that keep reorienting our search for knowledge generation after generation. Such suggestions may come to one who is using a slide-rule or sitting in a research council committee, quite as well as to one who is communing with himself in a closet. We know not how to produce such flashes, but we do know that they can scarcely occur in a mind which has not been dwelling upon scientific problems.

"To him that hath much, much shall be given." You have excellent equipment. You have admirable organization. You have a philosophical tradition of conceiving human behavior in a way which lays it open to scientific attack. On this basis you can build up knowledge bit by bit, after the cumulative fashion of the elder sciences. So much is assured. May you who are privileged to use this building have also the flashes of insight which come to exploring minds duly prepared. May you thus open out ever fresh vistas of future work, which will keep research in social behavior always as enticing as it is today.

BUREAUCRACY IN A NATION'S LEAN YEARS: THE GERMAN EXPERIENCE

ALBRECHT MENDELSSOHN BARTHOLDY

In the domain of international law we have become accustomed to a notion not only of equality in law of all the sovereign states but of a real likeness between them, a common heritage at least of all those states the constitution of which in some way or other claims descent from that great generic force, the Revolution of the 1780's and 90's. They are sometimes called civilized states, and if it may be assumed that there are degrees of perfection in civilization and that the nation which formed the concept rightly claims the privilege of being the *arbiter elegantiae* in this matter, then the French would certainly be the first to contend that civilization is in essence one: just as the intelligence which bids the politician strive for an enlightened citizenship is, according to the famous Descartian phrase, only one. Descartes' illustration of his thesis is, as everybody knows, the sun in its singleness as the source of light to all the world it illuminates. Matter may be manifold and of great variety. Human beings may differ in every particular of their physics and of their behavior toward one another. The measure, however, of their worth can only be one. There is no transition between darkness and light in this respect; a nation is civilized or it is not. Some of us will remember the times when nations seemed to set their pride in a supposed superiority of their own form of government over the constitutional

practice of their fellow-nations and a strong-willed monarchy here or a high-spirited republic there imagined itself the pattern state and believed itself entitled to look down, the one on that creature of loose morals, the republic, and the other on that old fossil, the monarchy. And to recall a more serious aspect of this prewar state of a nation's mind, the system of alliances was at least in its origins closely interwoven with a prejudice in favor of the military reliability of a monarch's word against that of the president of a republic or his prime minister. We have outgrown at least this juvenile complaint of international life, and we may be thankful for a saner view of the respective merits of having a hereditary or an elected head of the state.

But have we not even through the vicissitudes of the post-war period, when in some countries at least anything seemed to be right and good except the thing which had been right and good one or two years ago, retained a difference between highly civilized countries greater than the old difference between Catholic and Protestant peoples, between monarchies and republics, even between preponderantly industrial and preponderantly agricultural countries? I refer to the difference between a government which relies on a numerically strong bureaucracy as the chief means of securing stability and permanence of power and what is more, judicial impartiality of administration (especially wherever economic forces in conflict seem to make a disinterested management of public affairs almost impossible) and, on the other hand, a government which feels able to dispense, not, of course, with a civil service, but at least with the ethics of officialdom and which uses only a small number of permanent officials.

At a gathering like this, where we meet from East and West, from South and from North to pay homage to the spirit which creates a new institution dedicated to scientific research, and to the spirit of a free nation proudly able to rely on the voluntary support its citizens give to liberal education, it behooves us who have the privilege of addressing you to speak of some of the phenomena of social life which in our own countries we have tried for their worth, but to speak of them not so much as experts who think in terms of a successful experiment in scientific research but rather as witnesses of our own national life in which our individual existence is absorbed. If Mr. Jacques Rueff is right in defining the building up of a science in all cases as a creation of causes, the notion underlying this definition carries a special meaning in the case of the so-called social sciences. Here the empirical results under consideration belong to our own life, and the cause to be created is at the same time a justification of our own existence as something which is no mere accident in the life of the world but has to be conceived within the laws of causality. That is my reason for choosing a subject which in the light of your own conception of the essential elements of social life must seem rather a strange one, the bearing of bureaucracy on social life. But then we have experienced it in the lean years of our national existence when we stood at the other extreme of that blissful state of things where "all goes right and nothing wrong."

I ask for your attention to four special and distinct features of bureaucracy or, to use a term critics of this form of administration seem to relish, officialism in German public life.

1. Officialism makes for respectability.

2. Officialism involves a mobility of population which we would otherwise almost entirely miss in Germany.

3. In a country which is singularly exposed to the influence of many neighboring peoples, whether they be Latin or Slav, Czechs or Scandinavians, Poles or Italians, not to speak of the all-pervading penetration of the Jews either from Spain and Portugal or from the East, officialism helps to form and to maintain a body of essentially German people, most of them married men with families, the average conservative stock of the nation in which its character shows unmistakably.

4. Officialism, in spite of the inherent antagonism between executive administration and judicial authority which has during recent years been the subject of so much discussion especially in England, stands for the reign of law and for the security of rights against any attempt of either a small political or military oligarchy or a combine of industrial or banking interests to secure control over the machine of government.

Let me take these four points in the order in which I have named them, beginning with the simplest outward aspect of an influence taken by officialism in the social life of a country—I am almost tempted to call it the church parade aspect of bureaucracy because it has such a mid-Victorian flavor even in post-war Germany. Bureaucracy makes for respectability with a big R. Visitors from foreign countries used to tell us that the crowds in a German town on a Sunday or even on a working day after office hours look so much better clad and even tidied up than a similar crowd would in England or in France. We have the great mass of government and municipal employees to thank for this show of tidiness and of correct behavior. The civil servant,

whatever his rank and salary, would not like to be taken for a working man returning from shop or factory in his working kit or loitering about during his hours of leisure. He shows his habits of preciseness and a respect for his own dignity as the *Herr Oberpostassistent* or the *Herr Wohlfahrtsamtssekretär* even when off duty. The cartoonists have made play of this predilection for a handle to *Herr* and *Frau So und So's* name, and there is certainly no harm in poking fun at the Mrs. Tramway Conductor's Widow *Schmidt* claiming precedence over Mrs. Churchyard Gardener's Assistant (on the retired list) *Müller* at a *Kaffeekränzchen* in one of our own Middletown boroughs. Foreign observers, however, should bear in mind that this habit prevails in Southern and Middle Germany, that is to say, in the home countries of German democracy, much more than in Russia or in the industrial areas where class distinctions have altered the primitive salutations of social standard. It is in Württemberg and in Bavaria that the esteem for a position under the government is still strongest. A man, or it may be a woman, today is known for his or her office and has to carry himself or herself in accordance with being so known, and, modest as their duties may be and poor as their salary is, if they belong to one of the nine lowest grades of state-paid servants with a yearly income of from $1,000 down to a bare $250, they still have something of the civic dignity about them in which Ruskin loved to clothe the Companions Militant of his St. George's Company. Outward respectability may prove to be a hollow sham on Judgment Day, and the necessity of keeping up appearance in public has sometimes to be obeyed at a terrible cost. But on the whole the war has been good to us in doing away with

many of the older customary obligations of social intercourse and entertainment among members of the civil service and generally in making our lives more free from conventionalities. Among the younger generation, in fact, the need of a corrective to freedom of manners seems greater than it ever was before the war when military discipline went far to curb the extravagances of personal conceit. The daily round of duties in the office of a civil servant, together with its call for respectability and normalcy, may help the German people to steer clear of those professional sirens who would like to make our young folk believe that the thing in life is leadership and that a joyous readiness to make decisions dispenses a man from considering their rights and wrongs. Bureaucracy encourages the average, the unostentatious, and unpretentious way of life, and thereby, in fact, does much the same for Germany and the European continent generally that the American conception of democracy in social life does for the United States.

I can deal in a few sentences with my second point. Bureaucracy, with us, makes for a healthy measure of mobility. Apart from the question of national emigration and foreign immigration with neither of which can I deal here, we would, as a nation, be almost helplessly immobile were it not for our civil service system. It calls future employees from their native village or county borough first to a center of education, generally a small town of their native district, then for a term of apprenticeship to wherever they can serve as understudies or even as volunteers, and, finally, when they have entered the career, it orders them about from one end of the state territory to another just like officers sent from one garrison to another but, of course, taking their families

with them. When they reach the age limit of sixty-five they may retire to their native place, living there on pension. But consider what it means for a Bavarian of Franconia, from somewhere between Würzburg and Nuremberg, to have lived in the mountains of Upper Bavaria with their chamois-hunting and poaching and miracle-playing people, or to have gone across the Rhine to the County Palatine where people are almost French in their easy, genial manners, or again to the dark forests and strange ways of Upper Suevia on the Bohemian frontier, while all the other people in his own village have lived there for centuries without ever crossing the peaceful river Main to meet or perhaps, *horribile dictu*, to intermarry with the villagers on the other side of the river. They belonged forsooth to a Lutheran liege lord in the sixteenth century and remained Protestants since then, while those of the proper side of the river had been subjects of the lord bishop of Würzburg and therefore remained fervent Catholics to this day. It was Napoleon who drew the kingdoms and grand duchies of Bavaria, Württemberg, and Baden on the map, but it was their civil service which made those three nations of Southern Germany out of the hundreds of territories and cities and manorial lands they had been in the days of the Holy Roman Empire. And it is bureaucracy which will bind the German nation together, moving Bavarian tax collectors to Hamburg and Bremen, railwaymen from Eastern Prussia to the Swiss frontier at Basle, or a teacher from Silesia to a school in the Saar Valley, all this mobility being at the same time a much-needed antidote against the fatal attraction our big towns have for the country. If the government knows its business, it will let the provinces have the advantage of the very best intellectual forces of the service at its disposal.

While in this way our present system of officialdom, both national and in the component states of the German Republic, secures a healthy circulation of the nation's life-blood, it may from another point of view be regarded as a most conservative element in our constitutional life. Almost all the influences which in modern government count for restlessness, for utopianism, whether revolutionary or dictatorial, and for the state of ruthless idealism which cannot but follow wherever the individual places the dictates of his own conscience outside the common law of the land—all the influences which, if you would like me to speak more kindly of them, form the ferment for the big inert mass of a great people, are almost automatically excluded from the ranks of the civil service. Foreign blood, whether it be that of a more primitive or whether it be of a stock of oldest breeding, is one of the most potent ingredients in intellectualism. Even a few drops of it may enable a man to notice things in his fellow-citizens in national life, even in the language of the nation he has adopted which a pure-bred man is quite unable to see, as unable as a man is to look into his own eyes without the help of a mirror. Foreigners, however, and citizens of foreign extraction very rarely enter the lower grades of the civil service even in the second or third generation. It is not that they are excluded by rules of law or by a clan sentiment. The thing works by itself. Any other profession is preferred by the man with the quick, critical mind, impatient of routine, feeling himself an unequal, whether for better or for worse, a lawyer, a doctor, a journalist, an actor or playwright, a salesman, an inventor, an architect, a director of every kind of company or combine, a university professor, a diplomatist, serving the country in many cases quite as faith-

fully and perhaps with a more ardent and certainly a more intelligent love than his fellow-citizens of the "hundred per cent" persuasion: but not in the civil service by way of bureaucracy. It reserves itself to people with a single mind for administering their heritage. Such a reservation is never without its danger, and I shall have to say something presently about its bearing on politics. But I will first pass on to my fourth point.

It is the most difficult to realize, and there is much dispute about it among the writers on the subject. I can only give my personal opinion on it, and that is that with us in Germany officialism comes out strongly on the side of the law, not only by the sheer force of the number of officials who must feel a special obligation of remaining within the law—one of the most important items in the observance of law being strictly to avoid going to law—but also on account of the paramount importance of the concept of well-acquired rights, *droits acquis*, in the life of an official whose tenure of office is anything like permanent. His activities may necessarily to a great extent be such that he can only fulfil his duties of office by the use of wide discretionary powers, and by this same use he may seem to override the individual rights of a citizen or group of citizens. But even in so doing he is aware of being bound by a rule of law which limits his discretion and makes his decisions anything but arbitrary. They are most of them subject to revision on appeal, and there is no doctrine of law which has received so much attention lately and has led to so many carefully considered judgments of our special courts of appeal in administrative cases than the doctrine of what we call *Ermessensmissbrauch*—abuse of discretion as distinguished from the English doctrine of

ultra vires, and to some degree also from the French *excès de pouvoir*. I think the order of thought which expresses itself in these arguments and decisions emanates partly at least from the general attitude of the official of the lower and middle grades toward the law. With us in Germany he enters the career of service to state or community as a career which will certainly, on the one hand, preclude him from rising quickly to an important position with a high salary and which, as a rule, even makes it impossible for him to earn something above his normal salary by working overtime, but which, on the other hand, gives him a security of tenure and an acquired right to a pension which no other profession with its higher prizes and quicker changes can offer him. We have tested this during the period of inflation when every other contractual obligation went to that special prince of hell who had invented the sovereign right of a state to print and issue as much paper money as ever it likes, the right of the official to a kind of gold standard salary; and, what is perhaps more significant, the right of a former official or his widow to a gold standard pension remained unquestioned. It was this special bond of security as between the state and millions of its citizen officials which kept the machinery of government going and which, in my opinion, is to a high degree responsible for the relative smoothness with which, after all, the transfer of German currency to the gold standard was carried out.

Even then many people will say the price the taxpayer has to pay for bureaucracy is too high. During the last weeks Germany has resounded with the complaints of industrialists and business people generally about the unbearable burdens which capital and income

from capital have to carry. To those who voice that kind of complaint in Germany and in other countries as well I would, in conclusion, offer a few remarks about what seems to me to be the political importance of a civil army of state and communal employees amounting to almost a third of the population of the state. Among the urban population which in politics does almost all the writing and speaking and a good deal of the thinking, too, we may observe two great armies of organized manhood intrenched one against the other in an unmistakable attitude of being ready for a fight. One is the mass of the industrial workers organized in the trade unions standing for a more or less full measure of state socialism and, most of them, for parliamentary government and democracy. This is of common occurrence. Germany does not differ materially from France or Great Britain in the measure of influence nor in the program of the trade unions. The other mass of organized citizens, however, is peculiar to present-day Germany. Neither France nor England has anything to compare with the political forcefulness of what we call the *Deutschnationale Handlungsgehilfen Verband.* Commercial clerks, travelers and salesmen, shop assistants, apprentices to an artisan's trade, and many other members of the trading community form an army of nationalist and anti-Marxist fighters, intent on singing their battle-song of a state based on distinctions of caste—they themselves belonging to one of the superior orders —quite as fervently as any of their opponents may sing the workers' "Marseillaise" on a First of May. They long for heroic deeds: they dream of a rise in life, and though the old army would have had none of them even in the ranks of militia officers, they believe in the salu-

tary discipline of military service. To prevent a clash between the two armed camps of political adversaries, Germany needs more, indeed, than a few dozen high officials in the departments of state and a few hundred members of Parliament. Germany needs another army, a third one, to march in between the two enemy camps and keep them in peace by the sheer force of its numbers. It has found this army in its bureaucracy. It stepped in when the Putsch threatened the republic, and it would do this again. There are few greater spectacles in the world than a force strong enough to contain itself and by doing so to maintain peace among others.

THE SIGNIFICANCE OF THE BORDER AREA BETWEEN NATURAL AND SOCIAL SCIENCES

JOHN C. MERRIAM

So vast is the field in either natural or human phenomena that one can hardly develop the courage necessary for discussion of both. As one mode of approach, it seems possible to range from either side by limited excursions into the bordering area, constituting in a measure a no man's land where adventuring may be profitable. While other and more direct application of those principles which govern in human and natural science may be more profitable, there is hope that research of this type will help to solve some of the more important questions involved in relationship of the two.

Recent almost unbelievable advances in discovery of processes, or laws, or modes of procedure in nature, are sometimes assumed to indicate the order of progress to be expected in application of corresponding methods to study of human conduct.

Development of knowledge relating to nature has demonstrated that human intelligence can create the means for entering almost totally new universes of thought. At the same time practical application of the information obtained has given us control of new worlds of what might be called engineering opportunity. The transformation of our view of the natural universe through science has proceeded so far that, with reference to many things, we know as real experience today what was once conceived only in the superworld of fancy.

Through these excursions of natural science into the world of matter, space, and time we have opened for inspection such unimagined phases of nature as the structure and power of the atom, the almost unbelievable physical conditions obtaining on the sun and stars, something of the nature of the dark continent of the earth's interior, the intricacies of the living cell, and a little regarding the almost infinitely complex problem of life development.

The modern type of research and education as it relates to natural phenomena takes one out to view the face of nature, not as static, but as something which is neither the immediate result of an original act of creation nor yet the end-member of an evolutionary series.

So the geologist looks upon a great scenic feature such as Yosemite Valley, not as the ultimate achievement of geological process, but as the expression of a tremendous and fundamental process at a given moment.

New fields of thinking opened by the penetration of research into nature are sometimes visualized through the medium of a theory, and sometimes by use of an instrument. The microscope shows another world as real and vital as is the larger scheme of things through which we walk about in everyday living. The telescope brings other universes within reach. The geologist and paleontologist, dealing with the shattered relics of great physical and biological features of the past, piece together the remains of formations and of organisms in such way as to present a moving picture of time and change.

The student of the development of the living cell records its slow stages through the medium of the cinematograph. Speeding up these views upon the screen, he sees the result of changes from a relatively long period

flashed through in a moment, and recognizes in it phases which would otherwise escape notice.

The vastness of the new regions of thought opened by science, and the dependability of the materials which they furnish, have developed in us a respect for the results which constitute one of the most important factors in present-day life.

Possibly the type of intellectual development of the last century indicates, among other things, the dependence of progress in the study of science upon the development of human imagination. In a measure the visions of the poet have come to be the realities of the investigator. They have also become sufficiently real to form the solid ground of industrial operation and even the basis of dividend paying.

Viewing this subject from another direction, we recognize also that, with the natural resources of the world blocked out and evaluated, there are calculable, in some measure, the limits of opportunity for civilization of the future. We see that the advance of science shows opportunity of the future to be dependent not alone upon the uses of raw materials as they have heretofore been utilized. The whole problem of the future may be changed by application of new ideas as to means for utilization of the materials.

These situations have brought research in the natural sciences to a place of such significance that it can never again be considered merely a plaything or a luxury—or solely as a by-product from other activities. Recognized as a necessity in the development of means for utilization of the natural world, it is now an element of such importance that its promotion becomes second to no other group of activities.

Another outstanding feature in advance of research

in the natural sciences has been the discovery that there are few situations in which the limits of knowledge are clearly terminable. More and more in the study of nature does it appear unsafe to assume that the last item of information has been obtained on any subject. With all the inclination to segregate, and sift, and organize data, there is always the realization that it is unsafe to assume complete knowledge.

What I have said thus far relates to the kingdoms of the non-human in the world about us. A further discovery which science is making lies in the fact that, as between what is called inorganic and that relating to life, the organization of things living represents a field of vastly more complicated relations than that in the non-living. There begins now also to be evidence of appreciation that the contrast between the living and the non-living is only a faint foreshadowing of the type of relation and the difficulties of interpretation which distinguish the human from the purely biological.

The science of human organization is probably among the oldest of efforts for definition of knowledge. Much intensive inquiry had already been expended upon it before science in the field of natural history began to make visible the new worlds upon the conquest of which we have entered.

The great difficulties encountered in human organization today are due generally to one or the other of two simple factors; one is ignorance, or lack of organized knowledge, and the other is selfishness, or the influence of special interests of the individual. It is also true that advance is only too often impeded by the assumption that previous experience has given us the whole of obtainable knowledge.

The enormous difficulties which we encounter in the

study of the farm problem, of the tariff, or conservation, or prohibition, would in large measure melt away if complete, clearly organized data could be secured and viewed impartially.

The methods of science have been developed through what are considered as impersonal judgments on the materials of the natural world. In any attempt to apply these modes of research in human problems, one of the safest means of approach is through border subjects in which the scientific method is recognized as applicable, and in which the touch with human problems is relatively impersonal.

In such a field as psychology, the searchlight of inquiry is turned upon problems concerning the nature and composition of elements comprised in the foundations of human conduct. The morphological, physiological, and developmental problems involved in consideration of the physical basis of human living are subject to the types of control used in biological research. The fact that we recognize these as having a bearing upon human conduct almost illustrates the whole of the principle to be established in consideration of the border area between the natural and the social sciences.

Anthropology, or the scientific study of man, might be assumed to cover the whole of the border area, beginning, as it does, with the biological study of man through anatomy and physiology and extending into ethnology, dealing with cultural expression and modes of thought. In this subject we may find practically every human problem represented.

From one point of view anthropology reaches through archaeology into the region of history, and again into the domain of the geologist. Here the controlling principles

are those which have been developed through generations of study in the natural sciences, and have even had their dependable application in the harvesting of natural resources. It is also important to note that opinion as to the significance of human history as illustrated in archaeology is not seriously imperiled when the problems considered are sufficiently far removed from present individual, family, national, or racial relationships to permit undistorted vision.

The field of history, as defined specifically, represents one of the most interesting links between a large group of subjects on one side, considered from the point of view of their application to man, and others which have been formulated on the basis of investigation of nature. In classification of knowledge, one is accustomed to hear reference to history and science as co-ordinate, as if different methods or purposes were employed in the two. But more and more we recognize history as expressing through the movement of events another point of view or another dimension in the general scheme of knowledge, in somewhat the sense in which time comes to be related to space in considering the broader problems of the natural universe. This would be true without reference to application of the principle, whether it be with relation to the natural world or to human affairs.

The story of the earth, in which the drama of human experience is being enacted, is for a couple of billion years or so of its extent considered as geology. Here one sees developing the conditions under which we now live, and even the growth of man himself. Of this story we consider perhaps a million years as within the range of human history. The other two billion, minus the million, are geology. Within the human story the aggregate

time elements involved in what are commonly called history and prehistory would perhaps be estimated at fifteen or twenty thousand years. The remainder of the million or so is archaeology or geology, and the archaeology is itself read from a book for which the pages and general interpretation are furnished by the geologist and paleontologist. Results of investigation in what have been called the natural sciences furnish a large part of our knowledge of the modes of conduct or operation in development of the world about us. The principles which natural science derives in this study are, of course only modes of procedure in nature, although we call them laws.

While medicine initiates with the effort to cure human ills, its natural extension into the field of protection of the individual, both against society and against himself, means that this type of organized effort is again an extension of investigation and application, ranging from fundamental natural history sciences into the region of human reactions.

So as we review the groups of subjects which lie in the border area, there is realization of the continuity between the two fields of investigation. The student of natural science may properly count upon the right to extend his studies into much that concerns the human group. It remains for the investigators on the humanistic side to indicate what it is that distinguishes human institutions or modes of procedure from those characteristic of other aspects of the world.

One hearing this statement would perhaps infer that the point of view of the writer is that of a person attempting to see how far the cold principles of science may be made to carry over into the realm of the hu-

man. Presumably that is my function, and the statement relative to the significance of psychology, anthropology, history, etc., is framed with this in mind. I am, however, as much interested in the reverse of this process as in the extension of natural science into the social or humanistic field.

Because impersonal science dealing with descriptive operations has made great progress, we tend to forget that, after all, to human beings the personal reaction to external factors ranks in significance with the character of the outside influences, whatever they may be. The importance of the border area is not to be measured wholly in terms of extension of impersonal science into the humanities. It is valuable also as a means of examining the human factor as it influences science.

Especially hopeful am I that through the border area subjects there may be better evaluation of those peculiar human features that have to do with individuality. Whatever else may be true of mankind, it seems that as intelligence increases and the view of the individual over the universe widens, appreciation of his individuality strengthens. To what extent may this factor, which seems at times to represent human undependability, be evaluated?

Sometimes human variability, like that of a machine, may be attributed to what is called the instrumental error. Human beings at work, even in science, may show systematic, or instrumental, or personal equation errors. Often these must be determined in order to correct the results of work and make them fit what seem to be the facts. Sometimes individuals cannot agree as to what their systematic, or instrumental, or personal errors are. Then, according to which scientific paper you read, the

facts may seem to differ. The true result of a really great piece of committee work is often found through elimination of the systematic errors.

Two weeks ago the Carnegie Institution lost, through the effect of a terrific explosion, its ship "Carnegie," equipped for surveys of the ocean. With the destruction of the vessel, it suffered also the loss of the commander, Captain Ault. In study of the precautions against accident or disaster, there was discovered among the documents a telegram from Captain Ault, under date of middle November, which reads in part as follows: "We grow gray and spend sleepless nights trying to avoid losing equipment not to mention life and limb. At each ocean station the stage is set for any kind of accident and the determining element is human frailty. . . . . We have already modified our program doubling the time per station." What is the value of human frailty? In this case it seemed to have been evaluated and eliminated when such determination was possible. At the time of the accident the personnel seemed in perfect adjustment.

Another phase of the human problem especially concerned in study of the border area relates to those tremendous features, the emotions. Whatever they may be, they represent the way the individuals feel about it. Perhaps they can be measured in terms of anatomy, or glands of internal secretion, or physical malformation, or pathology. Perhaps there are other explanations toward which the student of human problems will contribute what the scientist has as yet been unable to discover. I remember standing near a prison in Yucatan. The governor had just addressed the prisoners. As we stood talking over the situation, he said to me, "Dr. Merriam,

the question is, shall we punish, educate, or operate?" When determination is made as to what should be done under such circumstances, the conference will probably take place somewhere in the no man's land which represents the overlap of natural and humanistic sciences.

This paper is perhaps expected to raise questions rather than to answer them. I am also safe in assuming that you will consider the statement of any problem to represent at least half the task. The formulation of scientific laws is essentially an attempt to express the conditions as we find them. In reality science does not tell us what nature is but only how it operates. We may not expect to understand human nature fully. We shall come to know more about the principles which govern conduct, and probably learn to see things as they are humanly, as well as in the form of impersonal facts.

It has been said that the line of beauty is curved, because it expresses all of the impinging forces involved. A straight line would be caused only by an explosion or the influence of a single force. In human affairs it might mean selfishness. It is the line representing truth, sometimes expressed as beauty, that we seek in relation to study of human conduct. It must represent the effect of all forces or influences concerned.

The story of the world as we see it through natural phenomena has brought out a marvelous group of principles, indicating a developmental process so vast that we comprehend it only with difficulty. There are reasons, and much to our advantage, why we should adapt ourselves in some measure to this scheme. In the field of human or social evolution one of the present questions is, shall we permit society to drift, perhaps also to better itself as the ages pass, but by a most expensive process,

and without our participation? Or shall we continue with the tremendous task of interpreting human conduct in hope that by the use of such laws or modes of procedure as are discoverable we may accelerate progress and reduce the effort, together with the loss? The desired end will not be attained through any one discipline or any one subject. The borderland to which I have referred may come to be one of the regions giving us the clearest view not only of man's relation to his environment but of his own nature also.

Some of the greatest mistakes in study of human conduct arise from viewing what has been called the spiritual as wholly divorced from the world of nature. Other errors equally bad arise from the assumption that the spiritual is entirely comprised in what science has thus far described in nature. The truth may lie in a view which gives us unity rather than separate worlds of being.

Following my tendency first to state a problem, I have made no concrete applications of the principles discussed. Lest my attitude be considered to represent the wholly detached, or academic, view, perhaps I should say that my life is largely given to these very types of applications—just now in Yucatan, where history in the form of archaeology, supported, on the one hand, by study of the biological and physical environment and, on the other, by anthropology, medicine, economics, sociology, government, and a study of the arts, moves to help in interpreting the story of a great American civilization, and the effect of its contact with another culture that moved across the sea to meet it.

Or if you come to our laboratories you will see biology busy, among other things, with endocrine glands in various relations, from chemical composition to that in-

fluence which may at times cause us to ask, "Shall we punish, educate, or operate?"

In these and other researches we have joy in co-operation with many agencies, expressing many views, physical and human. Among the co-operators we have pleasure in working with the University of Chicago. So when I wish you here all success in the work which this building represents, it is with confidence born of knowledge of your ability and ideals, and the prophecy of great accomplishment in the program to which your effort is dedicated.

MEDICINE AS A SOCIAL SCIENCE

MILTON C. WINTERNITZ, M.D.

It is less than a year ago that the dean of a school of law, in an address before the alumni of the school of medicine in the same institution, concluded his speech with the following statement: "Thus medicine and law, two ancient disciplines, become at once the newest and the oldest of the social sciences." The concept of medicine as a social science is so new, and the processing of the physician is so specific today, that we may well stop to consider what is meant by this statement.

Social science is the science of society, society is composed of individuals, and individuals can be further fractionated from the mental and physical points of view. Obviously, then, social science must consider the individual, the smallest unit of society, if it is to understand the group. Medicine, on the other hand, to attain a knowledge of the individual must consider him in his totality, not only as a psycho-physical organism, but also as a member of society. This necessity for regarding both the individual and his social environment, for considering both the biological and the sociological aspects of life, applies not only to medicine but to every field having to do with human conduct.

This does not mean that specialization must be eliminated. The extent of human knowledge is so great that it must necessarily be divided and subdivided into many parts. The doctor-priest-jurist-philosopher of the earlier stages of civilization has no place in the modern world. Few men can encompass efficiently much more than a

single phase of life. It is possible, however, that the point of view of the specialist may be so enlarged that he may articulate his particular interests effectively with those of other specialists in furthering the common end of all.

We may look to certain outstanding leaders of a generation ago for the direction in which medicine must advance. These men excelled in medicine as it was then formally constituted, but they were equally notable in their understanding of life and in their ability to evaluate the many factors upon which the well-being of the individual is dependent. It is highly important that this kind of ability and this outlook should be fostered in the medicine of the future. That it has been temporarily lost is not to be wondered at. Owing to the great expansion of specific knowledge in such fields as chemistry, physics, and bacteriology, medicine was suddenly given a great many new tools which could be applied to the study of the physical organism. The reaction was similar to that which occurs when a child is given a number of shiny implements. The use of them tends to become an absorbing interest in itself, and the end for which they should be used becomes more or less obscured. In applying precise facts and exact methods to the study of the physical organism, the physician has cut himself off very largely from the realities of life. In the eyes of the physician, the patient has become, not so much an individual living in a real world where there are many influences acting upon him, as he has become an organism or a fraction of an organism which the doctor can analyze to perfection, but which he does not correlate with the other fractions which go to make up the whole.

Furthermore, medicine as a whole has neglected the

scientific study of the higher mental functions. Because of this fact medicine and the other university disciplines concerned with the biological sciences are less well prepared than they should be to co-operate in the common task of sociology and biology. Public health, it is true, deals with mass health. But so far it has not reached that stage of excellence in its relation to medicine where it considers primarily individual health; nor has it yet been able to emphasize adequately anything but the grosser influences that affect man as a physical, as distinct from a rational, being.

Conceding that our knowledge of the social and psychic factors in human behavior is limited, but that specialization must continue, how can we bring back into medicine the concept of the individual as a psychobiological entity in a social setting, a concept held by an earlier generation of medical men who lacked the detailed scientific knowledge now available? It is true that we have introduced into the hospital and the clinic the social worker, but failure is evident here from the fact that the social worker is rarely regarded as an equal professionally with the physician, and is usually little more than a collector of information in which the physician may or may not be interested. It is obvious that if medicine is to become in fact as well as in theory a social science, the change must come through the training of the prospective physician.

It may be well to consider for a moment the kind of student who seeks admission to the medical school, and what his preparation has been. Here we see a reflection of what has happened in professional education, particularly in medicine. The mastery of detailed knowledge has been made so important in the curriculum of

the medical school, and the requirements for entrance so stringent in this respect, that the prospective student must begin his technical training in college and even before. The humanistic side of collegiate and preparatory education has consequently been reconstructed, and more and more energy has been devoted to the study of time-consuming details primarily in the fields of biological science.

The student has little time to become more than a fact-recording mechanism. His ability to see, to feel, and to think independently is not developed. Teaching is not vitalized, and the student perceives little of the relationship between what he is taught in classroom and laboratory and what is actually happening in the life around him. Interest centers largely in the collection of the number and kind of credit hours necessary for admission to the medical school. One is impressed by the validity of the statement made by Raymond Pearl:

> It is now quite possible, in fact it has been done, for a boy to go straight through from his letter blocks to his Ph.D. with precisely the same cooperation in the enterprise on his part that a sardine furnishes to the business of his transportation from the state of innocence and freedom of his birthplace to the diploma-bearing tin on the grocer's shelf. All that is requisite is a self-effacing conformity to a series of propulsive mechanisms.

With such a background the student enters the medical school. Now his attention to specific detail and his isolation from real life is intensified. The demands upon his time and energy are so great that he is inclined to give up what contact he had with the outside world. The extra-curricular activities from which he might gain some insight into the nature of human beings are minimized. Each faculty member is inclined to measure his success by the extent to which he can absorb the stu-

dent's time. The student is given little incentive for understanding the interrelationship of the various branches of biology, and less for perceiving what bearing the accumulation of biological facts may have upon human life.

After several years of concentrated attention to specific details having to do at most with decerebrated organisms, the student is suddenly thrown into clinical medicine. Here he finds that he is expected to apply his knowledge at once to actual problems of life. Naturally, he regards the patient from the only point of view which he has gained. To him the patient is a physical organism, and he sees little reality in the psychic, social, and economic factors which may have a very important influence upon the condition of the patient.

What solution can be offered for this situation? We have found by actual experiment that the amount of knowledge a physician requires in most of the specific branches is far less than that which is demanded of the student. The amount of information available today concerning the fundamental biological branches is very great, and no man can expect to master the full body of facts regarding each. Perhaps 90 per cent of all practicing physicians never use the chemistry they have learned, and many do not use any of the other primary disciplines. The point of view that should prevail is this: The best instruction is that which brings out the fundamentals of a subject in the briefest possible period. The student should be sufficiently freed from the study of detail so that he may have time for consideration of the broader aspects of life, and for that articulation of biological and sociological knowledge which must occur if medicine is to be a social science.

In order to give the medical man a proper regard for

psychic and environmental conditions, we must introduce into medical education a sociologist with experience in field work as well as with a theoretical knowledge of society. The sociologist with his staff must teach the student how to make the sociological examination of the patient. The clinical sociologist must stand on a par with the surgeon and the internist. He must know the academic side, but at the same time he must have had actual and wide experience in case work in the field. Obtaining the data in regard to the individual in relation to society must be considered of just as great importance to the student as obtaining the physical history. Contact with the realities of life must begin for the student at least as soon as he enters the medical school, and must continue throughout his course. The student must come in contact with the specialists in the psychic, social, legal, and economic factors bearing upon the individual just as he does with the specialists in the physical factors of health.

The result will be a broadening of the view of the physician as well as of the social scientist. Interest must not be confined to the physically ill or to the insane but must be directed to the well-oriented and the efficient individual as well, in order that he may become more efficient and less likely to succumb to disorders. The biological sciences and the social sciences have a common purpose—the improvement of the individual through group action.

May I express my great appreciation for the opportunity to speak here. I give you my best wishes for fruitful research ventures in this building, where all the activities of this great University can be correlated for the good of mankind, the one aim common to us all and near to our hearts.

INTERNATIONAL CO-OPERATION IN SOCIAL SCIENCE

SIR WILLIAM BEVERIDGE

Social science is the study of men in society, of men in varying relations—economic, political, social, legal—to other men. This science, we must agree, has not yet the assured position and has not made the progress of the physical sciences. If we ask why, the answer is to be found by considering the special difficulties of social science, and the conditions which differentiate it from the physical sciences, making progress harder.

First among these difficulties is the swift flux of the material with which the social scientist deals. The rocks of the geologist, the species of the biologist, remain to all intents and purposes unchanged for generations and thousands of generations. The institutions and devices which are the study of the social scientist change incessantly. Consider, for instance, the institution of money—that most indispensable of institutions to every one of us. In less than a thousand years, money, the means by which we transact our business and measure our wealth, has passed through successive stages of being mainly silver, then mainly gold or gold and silver mixed, then paper, then credit based on gold or paper, and, last, credit under the Federal Reserve System, which I take to be something quite different again. In each of these stages, the behavior of money has been different and its control has presented peculiar problems. If, indeed, we go back a little more than a thousand years, we come to a time, about the days of the

Saxon heptarchy in England, when gold and silver were so scarce that it is said that cattle were largely used as money instead. Considered as loose cash, a string of oxen must have presented peculiar problems; I have often wondered what the wad of an Anglo-Saxon millionaire looked like and where Mrs. Anglo-Saxon carried her small change when she went shopping for Christmas, or how money could be prevented from running away over night even more than it does in Chicago today.

Seriously, the changing form and behavior which economic institutions, and even more political institutions, take from one generation to another is a fundamental distinction between our own and other sciences. The practical moral that personally I incline to draw from this is that the social scientist, even less than other scientists, should not be content with mere accumulation of facts. Mere accumulation of facts is never science, but it is even further from being so in social science than in other studies, because facts uninterpreted so much more rapidly lose value and meaning. Their moral must be drawn and the generalizations made as the facts are collected, while they are fresh in the mind.

A second and yet more important distinction between the social and other sciences is that in the former we cannot to any large extent make deliberate experiments. A physiologist once said to T. H. Huxley that the "reign of science could not be said to have come till it was permissible for a physiologist needing a specimen to shoot the first man he met in the street and take the body to the laboratory." To which Huxley replied: "I presume that you would be careful to choose for shooting a really good specimen—a Newton or a Darwin." In the social

sciences, we are even less able to experiment freely than in physiology, and we suffer accordingly. How much light, for instance, would at once be thrown on the vexed question of the relative importance of heredity and environment in forming character if we could persuade each of 100,000 families to exchange with other families each child after the first, so that there could be brought up in home A, one child of heredity A, one of B, one of C, and so on, in 100,000 experiments. The problem would be as good as solved, but I fear that the unreasoning preference of parents for bringing up their own children stands here in the way of science. Consider again unemployment. One of the questions most hotly debated between economic theorists in England is whether large expenditure by the government on public work at a time of depression can reduce unemployment or whether such government work is given only at the cost of cutting down business enterprise and private employment. In our last general election, Mr. Lloyd George tried to put this issue to the test of experiment; he undertook—if the people would vote for him—to reduce unemployment to normal dimensions, by a large program of public expenditure and work. But, alas for social science, the voters have not given him the power to make this experiment, and now Mr. Keynes and Mr. Hawtrey can go on arguing forever. How much again we should all learn either about the effects of alcohol or about the relative efficiency of governments, if for a year Britain and Haiti, as well as the United States, would adopt prohibition! Social science is debarred from these short cuts and must take longer and more laborious routes; must study societies as man makes them, and cannot alter them at will. But here we come at last to a

difference between our science and others, which is also an advantage if we choose to make it so. The many individuals of a species studied by the biologist are all much the same; the societies of man are different. Though we cannot make our own experiments, the different societies of mankind themselves afford those contrasts of conditions which it is the object of experiment to supply. We can find in the world communities of all kinds, some old, some new; some in rapid growth, some stationary; some in crowded countries, some in empty ones; some wholly or mainly agricultural, some industrial; some governed in one way, some in another way. Humanity, if we look widely enough, is making for us many of the experiments that we need. Social science, therefore, above all things must be comparative, must study at one and the same time and comparatively, not one community but many differing communities.

This leads to a third characteristic of social science—that, though the differing societies of mankind provide much or all of the variety of material needed, this material cannot be moved from where it is. It must be studied on the spot. It must be studied, not in short bursts of field work from afar, but by agencies established there. In other words, comparative social science means international social science. Social science is nothing if not international.

I have spoken so far in general terms. Let me illustrate my generalities by a few instances, some of international co-operation within my knowledge already established, some of co-operation projected. For a good many years, Harvard University had been making a study of current economic conditions and issuing results in an economic service. The authors of the Harvard

service felt the need of widening the scope of their studies to include for comparison other countries. They might have done this directly themselves; instead they proposed to us in London that we, getting the University of Cambridge to join if possible, should start a separate but allied service and mutually exchange all information. This was done, and today the "London and Cambridge Economic Service in Co-operation with the Harvard Economic Service" is an established institution, with correspondents or allied associations in France, Germany, and Italy.

Let me name another project, on the point of being launched. For some years, two or three of us in England had been studying the history of prices there, while others in America had been studying the history of prices here and in Spain. I had felt the need, if full value was to be got from our English results, of setting them against a background of comparison with other countries, had made the beginnings of a superficial study in some of these countries, and had realized that working from Britain I should never have the time or means to be more than superficial. Now having come together with Professor Gay, of Harvard, with the help of one of the great American foundations, and with the assured co-operation of European scholars; we are setting out to make a comprehensive history of prices from the earliest times for which records can be had in America, England, France, Germany, Spain, Austria, and perhaps other countries.

What of labor efficiency, of social conditions, of unemployment, of population problems, of problems and methods of municipal government? Is not every one of these a topic on which sooner or later every serious

worker feels the need to make his study comparative? We hear, for instance, much talk about the relative efficiency of labor in different countries; how much all concerned might learn if what is said were brought to the test, by a combined international study of output, under varying conditions and in the same conditions, on the same and on different machines. Take again social conditions. A generation ago, in England, Mr. Charles Booth made at his own initiative and cost a survey of life and labor in London, a survey epoch-making in its influence on public opinion, shattering to the self-complacency of those times by the revelation of how much poverty went with our prosperity. One weakness of that survey, however, was that, relating to a single epoch, it could not show tendencies. Now, after a generation, we are repeating it in London; we hope to show how in that generation incomes and expenditures and forms of expenditure have changed, how labor and uses of leisure and wealth and poverty have changed, and what is now their local distribution; we hope to set up an objective standard for comparison with future surveys. Now I hear talk on this side of projects of inquiry both into social changes and into costs of living, into incomes and their expenditure. How much such inquiries as we are making in London and you are projecting here would gain on both sides if they could be talked over together in advance, planned so as to give results for comparison! There need be in all this no surrender at all of special aims and interests; co-operation in the sphere of social research is fortunately free of that bugbear.

Nor, indeed, do I suggest, at this stage at least if ever, that there is need for any formal body to co-ordinate

internationally projects of social research. All that I suggest will come about if leaders of research departments and institutes, before launching any large project of research involving large expenditures in one country, find it easy and natural to consider what they can gain by securing or using similar inquiries in other countries. This in turn will come about if the researchers of different countries have occasion to make personal contacts and have no excuse for not knowing what is being done elsewhere. This leads me to one more practical suggestion for international co-operation in social science. Since Cecil Rhodes began, more and more resources have become available for moving students about the world—with excellent results for the world and for students. Perhaps the time has now come when more attention and a larger share of resources might be devoted to moving the other two main elements in university life—teachers and books. Every social science department should include on its establishment provision for salaries and traveling of visiting professors, one or many according to its scope; should be so staffed as always to be able to spare professors to visit elsewhere; from these interchanges co-operation will spring inevitably. As to books, I do not know how matters stand on this side of the Atlantic; on the other side, each of the great national libraries, all-embracing of the products of its own nationals which it gets for nothing, tends to fall more and more behind in respect of other European countries and of America—the country which both because of its distance and its difference should be most completely represented. International libraries of social science are a crying need.

These practical suggestions, it will be seen, raise prob-

lems of finance; that is the way of practical suggestions all the world over. Here perhaps we strike a further difference between social science and her older sisters. The physical sciences have long established their claim to endowment by generous donors, by governments, by business firms hoping for results. Research in social science, in Europe certainly and perhaps here, too, still lacks this recognition. If it is to progress, as the physical sciences have done, it must have help on a scale unknown before. Can anyone doubt that such help would be worth while?

If I were a physicist or chemist or engineer, I should sometimes wonder whether mankind deserved the discoveries that I and my fellows were making for them; so often are these discoveries wasted or turned to ill. That would not, of course, affect my researches. Heaven forbid that any scientist should ever consider seriously what use if any can or will be made of his work! In fact, he does not consider this. Driven on by curiosity and a cold fury of desire to bring order into his understanding of the world, he is the slave of appetites as imperious as those of hunger or sex, though not like sex or hunger satiable. But the fact remains that the discoveries of physical science and engineering are now too often wasted or misused—wasted in unemployment and needless poverty, wasted in industrial strife, wasted and most horribly misused in war. Is not this because man, after all his conquests of nature, still fails to understand himself and the laws which bind him to his fellows? Progress in social science will not in itself banish strife and disorder from the world; it and it alone will give that common understanding of common problems without which strife and disorder must continue to the end.

Mr. President, your great University stands already in the judgment of its peers throughout the world among the very first of all the universities of this land. Of your new venture I need say no more. I can say no less than that it is a worthy continuance of the traditions that have made you what you are. From an institution of kindred aims I come to give you greetings and wish you Godspeed. You will know without my saying it that these greetings are not formal and my visit no mere ceremonial observance. For me it has been a chance to do things and to speak of things which lie very near my heart. Physical science is international in the sense that it knows no boundaries; great discoveries may be made in it in any of the research centers of the world. Social science is international in a deeper sense; its discoveries not only may but must be made by co-operative comparative research wherever men live and make their separate societies. Social science in all the world is one. Let us make its advance a concerted world-wide movement—a league of universities—to bring light and reason and knowledge into human affairs, to narrow the dark kingdom of blind chance, black temper, violence, and self-will.

CO-OPERATION IN SOCIAL SCIENCE RESEARCH

HAROLD G. MOULTON

Co-operation in social science research has within the last few years become a veritable slogan. I take it that the new building, alike beautiful and utilitarian, which the ever pioneering University of Chicago is now dedicating is properly to be regarded as symbolic of a new spirit of co-operation among the various fields into which the social sciences in recent generations have been broken up and also of the rediscovery of the essential unity of all humanistic studies.

For many years the trend in the social sciences was toward increasing specialization. Not only did economists and political scientists and historians and sociologists tend to pursue their own special ends, but within each of these departmental divisions a host of new specialists developed—in money, in commercial banking, in investment banking, in corporation finance, in real estate finance, in labor legislation, in railroad transportation, in water transportation, in rural and in urban sociology, in political theory, in political parties, in federal government, in municipal government, and perhaps most unfortunate of all in the history of ever briefer segments of time. It has been this continuous narrowing of the range of interest and vision that is, of course, responsible for that embarrassing definition that a specialist is one who concentrates more and more upon less and less until he reaches the stage where he can merely concentrate.

It is difficult to indicate any single cause for the change in emphasis that has come to the social sciences within the last decade or so. On the one hand, the fact that the results of highly specialized research on mere segments of problems contributed little either toward the solution of social problems or toward understanding of the larger aspects of social organization and social processes produced its inevitable reaction, for the human mind appears always to be in quest of the ultimate. On the other hand, the detailed statistical and other studies that have become so numerous had served to challenge the validity of many of the assumptions underlying the basic generalizations embodied in the comprehensive systems of thought which earlier scholars had elaborated. In any event, there has been a growing recognition of the desirability of developing a new body of generalizations of broader social import, and this, in turn, has disclosed the necessity of co-operation among scholars trained in different divisions of the social sciences and possessed of complementary technical qualifications.

There still remain, however, two fairly distinct and more or less contradictory views as to the processes by which important theoretical generalizations, whether in the natural or the social sciences, are derived; and this occasion is an opportune one for a brief presentation of these alternate conceptions. One view is that scientific generalizations come chiefly as a result of lonely reflection and artistic inspiration. In the words of Laski:

> Some lonely thinker, brooding in solitude upon the meaning of facts, from the significance of which he cannot escape . . . . gets a sudden moment of illumination, and he proceeds to test the hypothesis by finding whether it will fit the facts at his disposal . . . .

The great scientist, the great philosopher, the great historian, have always been in their essence great artists.

According to this point of view, no elaborate quantitative investigations or extensive field of research is required.

My own experience and observations have led me to believe, on the other hand, that significant generalizations, particularly in the field of the social sciences, usually come only as a result of extensive inductive inquiries. If one is to brood fruitfully, he must have something to brood upon, and the greater the body of factual information at his disposal, the more likely are his reflections to yield serviceable results. Mere quantitative data are, moreover, seldom sufficient, for the bare facts alone may throw little light upon social processes or the causal relationships. Intimate acquaintanceship with the actual administration of economic, social, or political institutions is often more illuminating than figures and curves may possibly be; and this is why the practical man of affairs not infrequently has a surer grasp of reality than the social scientist.

I would not wish to be understood as arguing that fresh insights are to be gained only in the market place or the statistical laboratory. New points of view, challenging hypotheses, flashes of inspiration come to individuals in various ways; they come from reading the analyses and interpretations of others, from the prosaic study of balance sheets, from contacts and discussion with practical men of affairs, as well as with one's colleagues; and they come from reflection and ratiocination. Moreover, they come in various places and under various circumstances; on lonely walks or hilltops; when lecturing before a class; in church when the music

or the sonorous voice of the minister sets one's thoughts to moving in unaccustomed channels; and even in hours of sleep when the subconscious mind sometimes discloses with crystal clarity that which eludes the conscious brain of our waking hours. These processes are in no sense mutually exclusive; rather they complement one another in gradually remaking one's whole intellectual outlook and understanding of the world in which one lives.

This second view of the processes by which valid scientific generalizations are derived is, I believe, largely a consequence of the fact that during the last twenty years a great many social scientists, working with the extensive accumulations of social data that have become available, have been able to subject many hypotheses and so-called laws to tests which have proved them wanting. It is a safe generalization that the more one works with quantitative data and with other factual information the more skeptical one becomes as to the validity of many of the so-called principles, or laws announced by our predecessors. And while on this theme let me state also the conviction that the theorist who would arrive at new generalizations must do more than scan the work done by statisticians, fact-finders, and descriptive writers; he must himself be a worker in the vineyard; the surest interpretations are likely to be those growing out of the inductive investigations in which the theorist is himself engaged.

Turning now more specifically to the subject before us, what are the advantages, possibilities, and limitations of co-operative research in the social sciences? The question calls for a consideration of various types of possible co-operation.

In the first place, it is impossible to get co-operation

in the abstract or in general terms. You can't lock two economists alone in a room together and force co-operation between them, nor can you develop a new social science merely by housing social anthropologists, social psychologists, sociologists, political scientists, economists, and statisticians in a common building. Such propinquity may promote cordiality and facilitate the exchange of views and the giving of mutual criticisms; but these are minor gains. To contribute in a really constructive way to the solution of significant social problems and to new theoretical generalizations of importance, co-operation must be conceived and carried out in specific rather than in general terms; that is to say, the co-operators must work together on specific problems.

The opportunities for such co-operation are before us at every hand. Indeed, investigations that are of basic significance very frequently transcend the bounds of a particular division of the social sciences and require for their handling the peculiar qualifications of workers in several fields. They call for the co-operation, in one combination or another, of political scientists, economists, statisticians, sociologists, psychologists, or even lawyers and engineers. In many cases the regular staff of a given institution will not possess all of the requisite talent, and it is then necessary to recruit by borrowing from other institutions a special staff for the particular research in hand. Here lies one of the best opportunities for inter-institution co-operation; but to be effective the various institutions must develop a willingness to lend on occasion as well as to borrow, a real difficulty in these days of keen competition and restricted personnel.

Co-operation between institutions located in the same

country or in different countries also has significant possibilities, as Sir William Beveridge has so clearly pointed out in his stimulating address. Indeed, I am inclined to think that different groups may help one another more by concerted attacks upon problems in which comparative experience is important and by a division of labor on projects of major scope and significance than they can by agreeing to a division of fields or research preserves. My own feeling is that we have scarcely made a beginning in this direction, and I am glad, indeed, to have the opportunity of seconding most heartily the views which Sir William Beveridge has expressed in this connection.

We have thus far been considering co-operation between different divisions of the social sciences and between different institutional groups. I wish now to discuss another type of co-operation which is quite as important as the co-operation of men drawn from different divisions of the social sciences. A group of individuals interested in the same division of the social sciences may supplement one another in vitally important ways. They co-operate through bringing to bear upon a given project varied interests and talents. One may have a special flair for statistical method; a second may have aptitude in, and fondness for, the hunt in out of the way places for relevant data, whether in historical archives or in statistical collections or in the experiences of men who have been concerned in one way or another with the problem in question. A third may have unusual language equipment. A fourth may have exceptional capacity in the organization and interpretation of material. One may be of an unusually reflective type of mind, always wondering whether the tentative con-

clusions reached do not need further qualification, elaboration, or modification, the type of mind that is perpetually revolving moot questions and seeking new light. Another may be particularly fruitful in suggesting leads for new lines of inquiry, and still another may be an excellent critic of detail, both as regards the data and the logic of the analysis.

Such co-operation does not imply that all of the co-operators are active participants in the investigation or that the product will appear under joint authorship. It merely means that the author at every stage of his investigation has the criticial and constructive aid of a group chosen because of special competency to contribute to, and appraise the results of, such investigation. In the institution with which I am connected, we appoint such a collaborating committee for every study that is undertaken, and it is the solemn duty of the committee to aid in the planning of the investigation, to confer with the author as the work progresses, and to criticize it vigorously when it reaches a completed stage. This does not mean that the interpretation of the author will be displaced by that of the committee; each member is to criticize with the utmost freedom, and it is incumbent upon the author to weigh carefully the criticisms made. If after free discussion and full discussion an agreement cannot be reached, the book is published in the form desired by the author and the disagreeing committee members are permitted to write a dissenting opinion for publication as an Appendix to the volume. This policy has proved with us a most fruitful one. We publish the interpretation in the form desired by the author, not only in the interests of academic freedom, but also because we believe that the

individual who has conceived a project, gathered, sifted, and digested the relevant data, is as a rule more likely to interpret its final meaning correctly and to achieve a distinctive contribution than is any committee group whose contact with the problem is in the nature of the case less intimate than that of the author. Indeed, we believe that the group mind is in many respects inferior to the individual mind, particularly in relation to constructive thinking.

But this by no means implies that the individual interpretation will not be rendered more precise and better balanced if it has to run the gamut of friendly yet trenchant criticism before it reaches its final form.

I am tempted in conclusion to observe that co-operative research on problems of basic social importance presents real difficulties even when conducted under the most propitious circumstances. The economist recognizes as a matter of course that economic wants constitute the mainspring of all human activity and is hence fundamental; the psychologist admits that the humanistic sciences are concerned with human behavior and that, after all, human behavior is nothing but psychology; the political scientist remembers that economics is but a minor subdivision of *political* economy—the original name, political science—and that this master science ages ago had experimented with every principle of behavior known to the present day psychologist; the sociologist originated because of the restricted conception of the social world which was held by other social scientists, particularly the economist, and the failure of philosophy to keep abreast of a changing world; the historian, i.e., the modern historian, proclaims that as the study of man in all his activities and relations, his-

tory is the all-embracing social discipline; the anthropologist has discovered that his field is really of central significance because it constitutes the connecting link between the social and the natural sciences and thus is the foundation on which all science is to be unified.

Fortunately, the statistician recognizes that he is but a modest collaborator, furnishing merely a useful tool for others of greater pretension. Who knows but that herein lies the real hope for the future?

Seriously, co-operation in social science research, if it is to be made effective, requires on the part of all who would collaborate therein increasing modesty, great tolerance, endless capacity to stand the wear and tear of what often seems fruitless discussion, and infinite patience with fellow-workers.

THE PRESENT TENDENCY OF THE SOCIAL SCIENCES IN FRANCE

CÉLESTIN BOUGLÉ

In spite of my deplorable accent I want to try to say a few words in your language to thank you for your kind invitation and to salute your new institute in the name of the University of Paris, which has delegated me to do so.

The university which sends me to you from the Hill of Saint Genevieve is one of the oldest in the world. But, situated on that ancient hill, it remains, we like to believe, capable of entertaining modern ideas. It is interested in novelties. It follows with a curiosity that is full of sympathy the experiments undertaken on such a vast scale by the United States, not only with powerful material means, but with such stirring optimism and with such beautiful faith in humanity.

That sympathetic curiosity, besides, is a fairly ancient tradition with us. Need I recall the words in which, within two years of the Declaration of Independence, Turgot saluted the birth of your nation: "It is the hope of the human race. It is sure to give the example of political, religious, commercial and industrial liberty. It offers an asylum to the oppressed of all nations and should be a consolation to the whole world."

How many French observers have come since then to verify that hope and to feel the pulse of that new humanity? There was Henri de Saint Simon, the prophet of industrialism, who came to defend "industrial liberty" on your soil, and profited by his passage to put

forward the idea of the Panama Canal. There was Alexis de Tocqueville, who, on the eve of forty-eight, announced an equality which frightened himself a little, but who admired the way in which, among you, it was made compatible with liberty. There was Claudio Jannet, after eighteen seventy, a disciple of Le Play, who wanted to prove that if the United States did look cheerful, it was not because of the principles of democracy but in spite of them. Paul Bourget, also, is hard on democracy, against which he likes to turn the forces of science, and which he considers powerless to appease the struggles of the races. Yet, in contact with your robust activities, he could not help feeling a sort of mysterious exaltation, "as if," he says, "an act of faith in human will pronounced itself within me, in spite of me. And I open my heart wide to the great breath of hope and of courage coming from over the sea." And then there are the inquirers who got off the last boat—or the boat before the last: Ch. Cestre, André Siegfried, L. Dubreuil. They want to know in what measure industry has, in rationalizing, humanized and democratized itself, in what degree religious sentiment is compatible with the conquering spirit of industry, and national sentiment with the desire for equality, whether the machine oppresses or liberates man, which is only saying in diverse forms that they study among you, in your body corporate, the struggle or the agreement between matter and mind.

These are all inquiries of a tendencious nature, you will say? It is possible. Once there is question of social matters, human matters, we all know that it is particularly difficult to be objective. But it is precisely here that we come to the point of your enterprise. So many

of the problems that preoccupy us, you are going to try, thanks to the resources and the methods of your new institute, to resolve, little by little, by means of precise inquiries and verifiable documents. You have formed the opinion, you who are praised as the most practical people in the world, that it is first necessary to let the facts speak for themselves, and to observe social realities as they are without any practical end. You recall to us also, you who are so obsessed—if I may use the word—by the idea of service, that the greatest service one can render to modern humanity is to increase by a few grains its harvest of truths; a noble example and a salutary warning, for which we remain profoundly grateful.

I

You have asked me to speak to you of the present condition and tendencies of the social sciences in France. Everybody will admit that this field of work is dominated by a great figure: Emile Durkheim, the author of *La Division du travail*, of *Le Suicide*, and of *Les Formes élémentaires de la vie religieuse*. Durkheim, supported by a group, the contributors to the *L'Année sociologique*, and by a tradition, that of August Comte, which is also that of Hippolyte Taine, has better than anyone else shown, not only by precept but by action, that it was both possible and necessary to apply the *esprit positif* to the study of human relationships. Thanks to the impetus given by Durkheim and to his influence, the real object of sociology was made clear by examples; and objective researches, both comparative and synthetic, bearing on human institutions in their relation to the life of groups, have visibly progressed in France.

In spite of this great accomplishment, it would be

dangerous, however, in order to make you understand the present orientation of the social sciences in France, to attribute everything to the influence of Durkheim. On the one hand, this influence is limited. It encounters substantial resistance, not only from the rationalists, but from the economists as well as from the "moralists." On the other hand, this same influence has found supporting influences; side by side with obstinate resistance there is spontaneous agreement. Many of those who carried their researches into the field of the historical sciences and especially into the field of the special social sciences experienced, without awaiting the watchword from Durkheim, the same need that he felt: to wit, the need for finding a happy medium between the recess of particular details and the excess of generalities a priori, between the verbalism common to too many philosophers and the micrology dear to too many historians. They demanded of themselves principles of organization, in order that the mass of information obtainable about society might be controlled.

Thus they found themselves led, either to come into contact with conceptions analogous to those formulated by Durkheim or to favor their expansion.

We shall try to note both agreements and resistances in going from sea to mountain, from the region in which the facts are all jumbled in their particularity, to the region in which the principles are crystallized, passing through intermediary stages, such as the science of law and political economy.

About thirty years ago it seemed that there was not only an incompatibility of temper, but also insurmountable opposition between the group of sociologists under the flag of Auguste Comte and the historians.

The author of *L'Histoire politique de l'Europe con-*

temporaine, Charles Seignobos, maintained that the political development of contemporary Europe could not be explained by general laws, but only by accidents incapable of being foreseen. And in the book which he wrote in collaboration with Charles V. Langlois, *L'Introduction aux études historiques*, which is for us what the *Lehrbuch der historischen methode* of Bernheim is for Germany, he recalled that what interests history especially is the matter of differences, differences between peoples or between civilizations, as well as between individuals. Now, is not the sociologist by very definition in search of analogies? It seemed impossible to fill up the ditch. We have, however, a tradition which permitted us to throw bridges over this ditch, the tradition of Augustin Cournot. I know how highly you value him as an economist. He has also written books of methodology in which reflections on history have a large place. The theorist of chance, Cournot admits naturally that human history must deal with a certain number of facts not controlled by laws. But the existence of such facts does not make the search for general laws useless nor impossible. There is not only a "motion of the centuries," that is to say, dominant tendencies, which remain to be disengaged from the mass of particular facts; but even more, we are permitted to anticipate effects of certain institutions, of certain ways of grouping.

The reflections of Cournot prepared us thus to understand a distinction on which Paul Lacombe, the author of *L'Histoire considerée comme science*, was to insist: the distinction between the event and the institution. The marriage of Prince So-and-So is a unique event, particular and contingent. But the ceremonies, the rites, the formalities which accompany it are things

which occur again and again. They are part of the network of institutions which envelop all human groupings, a network to whose formation and effects one must give attention, if one wishes to disengage from history, in its turn, a science of the general.

M. François Simiand was to make distinctions of the same character in a discussion with historians, notably with M. Paul Mantoux, on historical method and social facts. He recalled in his fashion, as I had done it myself in a little collection of essays entitled *Qu' est-ce que la sociologie*, that every scientific explanation of historic events supposes general laws, that it is a question, not of taking an attitude a priori, but of inferring, of disengaging by inductions based themselves on a comparative observation of social facts.

In what measure, then, have the works of historians themselves answered to these desiderata? We must distinguish. There are many types of historians. History of the Thiers type, which revels in bibliographical details and in accounts of battles as in *La Rèvolution et l'Empire*, is very different from history of the Fustel de Coulanges type, which, whether for the Ancient City or for ancient France, demonstrates the mechanism of institutions and throws light upon their relation with beliefs. We are going to celebrate soon the centennial of Fustel de Coulanges, one of our most illustrious predecessors in the faculty of the École Normale Supérieure. We cannot fail to recall on this occasion his warning, "Many years of analysis are necessary for one hour of synthesis." The fact remains none the less that he himself sketched a synthesis, and that his descriptions of institutions open up to sociological apprentices the fairest prospects.

Now it seems to us that for some years history of the Fustel type has been gaining ground in France over history of the Thiers type. Even before the war many elementary school teachers and principals desired a transformation of history which would permit them to renovate their teaching; they asked that less space be given to battle history and that more space be given to institution history; they wanted the general development of civilizations to be in relief and their convergences side by side with their divergences to be noted.

Since the war it seems that we have been working in several quarters in France to satisfy these desires, desires more than once reiterated in the congresses of the League of Nations, in which the organization of "international individual co-operation" has been extolled. Such a publication, the title of which is itself a program, is *Peuples et civilisation*. There is announced in it the intention of insisting on contacts between civilizations and on the development which brings among them more and more numerous beliefs. Here is one more general still: *L'Évolution de l'humanité*. There is found more than one picture, for example, in *La Civilisation égéenne*, of Glotz, in *La Civilisation chinoise*, of Granet, or in *Des clans aux empire*, of Davy and Moret, which disengages relationships, heaps up comparisons, and suggests inductions. Moreover, the man who assumes control of the group, M. Henri Berr, does not fail in his Preface to invite the reader to reflect on the necessity of discriminating in history between what belongs to individual initiative and what belongs to collective movements; the "center of historic synthesis" has now been constituted in which we try to elucidate conceptions, such as those of race or culture which are the common property of historians and sociologists.

In doing this French research workers, moreover, are responding to wishes expressed by an international organization of historians. At the Congress of Oslo they took steps, not only to exchange bibliographic information, but also to bring their works themselves into better relation. And then we have those led to specify, on the suggestion of M. Marc Bloch, the best conditions for the use of the comparative method; that is to say, that history since the war seems to us better disposed to take more than one step toward sociology. At any rate, as far as French publications are concerned, more and more history books appear of the type which answers our questions and brings us matter for induction.

II

It goes without saying that if we pass from history in general to law, the possibilities of agreement between specialists and sociologists appear to us more and more numerous. Sociology, we said, lends itself to a comparative study of institutions, institutions understood in the broad sense of the word: collective habits. Now, is not law the institution of institutions, the institution which serves as a framework for most of the others? The obligations which it defines, the penalties which it inflicts, do they not have as a principal function the creation of respect for those values which societies hold as essential? Whence it follows that sociology finds in the rules of law the best sources of information for the objective study of ideas which dominate in a given society. Whence it follows also that the specialist, however little he may touch upon comparative history or rise to the philosophy of law, succeeds by himself in arranging problems or in sketching theories of the most direct interest for the sociologist.

We know plainly enough what perspectives comparative research on penal institutions have opened up, research initiated in France by Darest. We have perceived that any form of repression, such as the vendetta or "composition," was in no way, as we used to believe, the monopoly of certain races; rather it corresponds to certain types of organizations representing themselves phases of a general development.

The specialists of public law, on their part, could not fail to find in various forms the eternal problem of the relations of the individual to society. Hauriou thinks that we cannot understand the origin and development of institutions without establishing, not only the collective aspirations of the time, but also a certain number of eternal ideas, conditions of equilibrium to which societies try to approach. Duguit, who wants to be exclusively positive, discusses both the idea of independence of the individual and that of the sovereignty of the state; it seems to him that the necessity of causing to be respected only that order which permits the accomplishment of the various social functions is sufficient to justify and to direct the effort of juridical regulation.

Moreover, if one seeks to find how a private law itself is applied, we perceive that law cannot foresee everything, that it always leaves place for the interpretation of the judges. Monsieur Geny has held forth at some length on the methods which we can use here to avoid arbitrary action. But will the judge be led to use extratemporal and universal reason in order to make a decision? Or will the judge try to understand and to interpret the aspirations which are current in his time? If, as Monsieur Morin says, there is a "revolt of facts against the law," is it not because certain common feelings rise up at the start as judges of the facts?

We can guess in what spirit the adepts of the sociological school are going to step into the method of this highly suggestive controversy. They will bring to it a strengthening of the tendencies toward evolutionary relativism and to tendencies toward social psychology. Let one read for himself the thesis of Fauconnet entitled *La Responsabilité*, or that of M. Davy called *Le Contrat*, and one sees that these sociologists, not content with showing that such or such juridical rules vary according to societies, try to establish the fact that certain central ideas, mainstays of the law, are at the same time products of development rather than gifts of nature. The idea of making the individual responsible and alone responsible for his act is not a primitive idea, a "natural" idea. Has a crime been committed wronging the tribes that we call primitive? The wrath of the people is discharged at random upon things as well as upon persons, upon the child as well as upon the grown man. In order to control this feeling, in order to bring it to fall back upon the head of its author, a long travail of civilization was necessary; the individualization of responsibility is a point of arrival and not a point of departure.

What M. Fauconnet demonstrates thus in regard to responsibility, M. Davy demonstrates concerning the contract. In primitive societies the obligations of men are clearly defined by their status, by the place which their birth creates for them. It does not seem to occur to them that the sacred bond among all is the one which results from the agreement of wills. An institution like that of potlatch, that obligation of giving which creates the obligation of receiving and returning, so widespread in so many primitive societies—does it not put society on the road to this idea? This anticipatory gift, which permits a man to be distinguished for his generosity, is

also a primitive form of exchange. It creates habits of life and of thought different from purely solidifying customs. It is a sort of limbering up exercise of the juridical mind preparing to institute the era of contracts. The formation of bonds between individual consciences itself assumes certain conquests of the collective conscience.

It is to be noted that in developing these themes the contributors to *Année sociologique* prove faithful to the spirit of its founder. He, himself, in an essay published in Volume IV of the *Année*, and entitled "*Deux lois de l'évolution pénale*," has furnished a specimen of what we have called evolutionary relativism with a social psychological base, applied to juridical problems. If the penal system according to him became less and less inhuman, if punishments depriving liberty prevailed over punishments depriving of life, if the suffering imposed upon the guilty man, considered on the whole, is lightened, it is because, on the one hand, societies are becoming less and less simple. The various modes of grouping overlap and neutralize one another. Power comes up against resistance which prevents it from giving in to the intensity of the unbridled urge. On the other hand, we can say that crime becomes less and less a religious question. The crimes which cause the most horror are those which no longer appear to menace the collective beliefs, the soul of the groups, and to deserve as a consequence the harshest penalties. Violations of the rights of individuals are becoming crimes par excellence. The criminal himself profits by this change of feeling. Guaranties are made to the prisoner; the punishment inflicted upon the convicted person is humanized. Thus two kinds of changes explain for sociologists the orientation of the development of law, those which are produced in the

order of social forms and those which are produced in the order of collective beliefs.

III

The sociologist is trying to give to social forms and collective beliefs from the economic point of view also what is due to them. But it seems that his effort encounters more resistance on the part of economists than on the part of jurists.

When Emile Durkheim appeared before the *Société d'économie politique* in order to explain that the values which the economist treats are also "matters of opinion" and that from this point of view we could build bridges between political economy and sociology, what a fine shouldering of muskets there was. We recalled at the most recent stage of the social sciences not only that the science of production, of circulation, of the distribution of wealth, was the first in date but also that it had attained to true natural laws independent of the fluctuations of opinion.

To be sure, those who take this attitude are only representing one of the traditions of political economy, one which goes back to Adam Smith and to Riccardo, one which recognizes only individuals, willingly makes abstraction of boundaries, and intends to formulate laws valid for all times and all countries. There is another which goes back to Friedrich Liszt and his German followers, who had a very keen feeling for the reality of nations and collective interests which belong to them. They give an increasing place to relativism, distinguish phases, and try to establish by induction laws of revolution rather than eternal laws. This amounts to saying that, as the articles of Durkheim himself on the

science of manners in Germany testify, the more the first form of political economy seems to depart from sociology the more the second form prepares the way for it.

Toward what attitude do the French economists of our day incline? A recent book by Monsieur Gaëtan Pirou (*Doctrines sociales et sciences économique*) advises us of the diversity of possible responses. Our economists will not all agree in repudiating entirely abstraction and deduction, as Auguste Comte demanded in his criticism of political economy. Several, for example, Messrs. Antonelli, Bodin, and Bousquet, think it useful to constitute a pure science of économy, the results of which could eventually assume mathematical form, abstraction made of extra-economic influences whose intervention might disturb the play of laws obtained by deduction. But it is notable that in employing this method we know very well that it could not by itself meet reality, such as it is. The theories of pure economy are true within narrow limits—M. Rist has insisted on this in a fundamental article in the *Revue de metaphysique et de morale* on "*L'Economie pure et l'économie optimiste*"; they are true only for the ideal market from which real markets may very well differ for all sorts of historical reasons. Let one examine closely this remark and develop the consequences of it; one will find himself on ground familiar to sociologists. It is they who insist the most on the necessity of observing the various types of social realities in the center of which economic life is instituted. Even laws like the law of supply and demand, from which economists draw so many applications, are only verified within a certain circle and on condition that a certain state of law is realized, that

is to say, total liberty of exchange, appropriation, and free distribution of wealth, which directs in some way economic forces. M. François Simiand has brought this to light in a little book entitled *La Méthode positive en économie politique* which remains the breviary of social economy in France.

Do we wish to show by examples what results it will reach? Here are two which will recall, on the one hand, that it gives a large place to evolutionary relativism and, on the other hand, to the psychology of groups. When after the war the *Année sociologique* reappeared, Monsieur Marcel Mauss published in it an essay called "Le Don, forme archaïque de l'échange." He pointed out in it the economic importance of this system of presentations which obliges those who benefit from it, i.e., the system of potlatches to which M. Boas first drew attention in France. He remarks that in a number of societies the potlatch opened the way to exchange properly speaking, and, knowing the place which the economy of the gift preserves in contemporary societies, he then observes that the *homo oeconomicus*, dear to founders of political economy, is also a historical type, the characteristic product of a certain form of civilization. Halbwachs tried to establish, moreover, that even in our individualistic civilization the economic motifs that individuals obey are most often determined by the group to which the individuals belong, and notably by the class; he tries to establish this fact in his thesis: *La Classe ouvrière et les niveaux de vie.* By the analysis of the amount of expenditure devoted to food, to clothing, and to lodging by a certain number of workers of the industrial class, he counts on showing that the relatively small amount reserved in this class for the cost of lodg-

ing is explained by the nature of the tasks performed by the workers, tasks which by enslaving the worker to the machine disaccustom him to the pleasures of social life; thus the nature of expenditure is suggested by the nature of the livelihood. The place of a class in the system of production accounts for its manner of consumption, and this is an example of service which social psychology can render to political economy.

IV

It goes without saying that it is especially in the field of psychology proper that this influence of sociology will be felt. It has often been repeated that sociology in France established itself denying psychology, by declaring it useless. We used to base our arguments in order to prove this thesis on a classification of sciences made by Comte, who seems to forget psychology purposely, and on the precepts of method formulated by Durkheim, who urges us to treat social facts like things. M. C. Blondel, in his *Introduction à la psychologie collective*, has definitely corrected these mistakes. It is not all psychology that the founders of sociology wish to eliminate; rather do they object to a certain psychology, which depends upon introspection and which seems to depend, in order to explain the development of social institutions, only on the reflective analysis of the individual by himself; the same psychology the inadequacies of which H. Thine and T. Ribot have already decried. The convergence of Ribot and that of Durkheim is very remarkable. It cannot be better observed than in the great *Traité de psychologie*, among the collaborators of which G. Dumas assumes the leadership. T. Ribot wrote: "Psychic facts take their roots in the organism

and blossom only in society." This maxim is in a way the theme of almost the whole work. If it is a question of the expression of meanings, of perceptions of the will, we see there sewed together two fabrics of different origins. We see brought together two series of revolutionary information: that which the study of organisms furnishes and that which the study of societies furnishes.

Ribot had complained that the psychology of his time scarcely knew any being except "the white man, adult, civilized." Psychology contributes to fill up this deficiency by drawing attention to the diversity of human types which the social life includes or to the diversity of cultures that societies add to nature.

It is to be noted that it is not only, as they seem to believe sometimes in the United States, the psychology of the primitive peoples which has thus been renewed by sociology in France. I have been told they sometimes call the school of *L'Année sociologique*, the ethnological school. The title is only partly correct. It is very true that more than one contributor to the *Année*, after the example of Durkheim himself, willingly goes back to the simplest forms of social life in order to explain the origin of elementary beliefs and institutions. On the other hand, it is to the study of primitive mentality that M. Lévy-Bruhl has devoted his greatest effort. And by showing that in this prelogic state "everything is a part of everything else," that the judgments of values are mixed inextricably with judgments of realities, and that the mystical beliefs of the group are mixed even with the perceptions of the individual, he has informed us that we are incapable of representing clearly to ourselves the primitive way of thinking; a whole world separates us from their societies.

But this attention granted to what is farthest from us does not prevent the adepts of the school from presenting their theses to the civilized man. It is useless for him to become individualized as the feelings which guide his choices reveal the tendencies of the various groups of which he forms a part and, to repeat the expression of M. Paulhan in his book, *Les Transformations des sentiments*, "spiritualization" can scarcely proceed without socialization. If we penetrate to the very core of man, if we study closely the conditions of his will, we might discover the influence of the social construction of all orders which, in teaching us to control our intentions and our instincts, aid us also to develop individuality; we meet with an idea here which takes us, it seems, to the antipodes of the teachings of your Emerson. M. Ch. Blondel, in the chapter of his *Traité de psychologie* devoted to the will, shows us that all personalities worthy of the name, even those of reformers, even those of the religious, rest in some fashion against a wall built by society. M. Halbwachs, on his part, often gives himself where memory is concerned to an undertaking of the same sort. Distinguishing distinctly between the dream which furnished M. Bergson the point of departure between his first analyses and memory proper, which always supposes a more or less complex structure, he maintains that the limits of this structure are built by the group to which we belong. "We remember only ourselves," are famous words that have been repeated for a long time. M. Halbwachs takes the opposite point of view from the thesis that these words imply. Even in the act of remembering, an apparently independent effort, the individual is supported and guided by groups and not at all by the family only, but

by his class, by society, and by the nation to which he belongs.

In trying to throw light thus on the sociological explanation, the development of memory or of will, M. Halbwachs and C. Blondel apply in the territory of psychology a program sketched by Durkheim himself, because he was clearly conscious that the objective researches which he extolled would not only have as a consequence a better understanding of such or such an institution, its causes and its effects, but also of human nature, perhaps even helping us to picture the origin of the mind. If there is a human nature, it is because the life of the group superposes itself upon that of the organic life. If reason has taken shape in us, with its forms, its categories, and its principles, it is because the religious beliefs, themselves grown out of the correction of consciences, have disciplined the impulses and governed the impressions of man. By the ceremonies which they organize, by the rites to which they give rise and which they maintain, it is they which distinguish between the parts of space, which scan time, and which elaborate ideas such as those of substance and of cause. Thus the rational thought of the individual of today probably had its roots in the mystical thoughts of the primitive group.

V

At the end of these analyses, it appears that it is not only a renewal of psychology but a renewal of philosophy proper. We have tried to bring this to light in a little book composed of articles and of messages from Durkheim to the *Société Française de Philosophie* (*Sociologie et philosophie*). *Sociologisme* implies a certain conception of life, a certain conception of the relation

not only between the individual and society, but between nature and the mind. Between naturalism and spiritualism as well as between empiricism and rationalism a middle way is sought. Thus appears the promise, not only of an orientation of research, but an orientation of action, and the moralist in his turn may profit by the reflections of the sociologist, who evinces in the social life a condition of spiritual life, and in the judgments of value imposed by collective conscience an instrument of *L'Education morale:* this is the title of Durkheim's latest book—the summary of a course in pedagogy.

Both the hopes which sociology has aroused and the resistance which it has encountered are doubtless explained by these perspectives. Lay France is always waiting to make the union of souls in the public schools by the aid of a system of ideas based on science. The director of primary teaching, M. Paul Lapie, who was a contributor to the *Année sociologique*, was anticipating without doubt a result of this order when he prescribed that in the normal schools where future teachers are trained ideas of sociology applied to character and education should be taught. This program gave rise to a literature of manuals and of selections analogous to the one with which America is familiar, a literature destined to bridge the gap between sociologic research and primary instruction, but this movement did not fail to awaken distrust. The claims of sociology were evaluated again. One asked whether it wanted to, or indeed, whether it could, replace religion or philosophy. Reservations are formulated, objections set forth not only by traditionalists like Paul Bureau in his *Introduction à la science des moeurs*, but by rationalists like Gustave Belot

in his *Etudes de morale positive*, or like Dominique Parodi in his *Bases psychologiques de vie morale.*

The discussion continues. And if it has not obtained success on all points, sociology in the last thirty years in France has at least probably had the merit of furnishing substantial food for reflection to philosophers.

But what is more important in our eyes, without doubt, is the impetus, the channels, which it has offered in so many fields to positive research. We have appeared at times to fear the abstractions which the sociologists used when they spoke of the reality proper of groups or the power of the collective conscience. Some said that they were only in the rain clouds, but in fact we have tried to show that rain clouds like this one do not pass without enriching the fields of work.

SOME PROBLEMS OF METHODOLOGY IN THE SOCIAL SCIENCES

FRANZ BOAS

I intend to speak on some problems of methodology in the social sciences. You will permit me to confine myself to those aspects with which I have to deal as an anthropologist.

As Simmel justly remarks, the development of the social sciences is largely due to the general tendency of our times to stress the interrelations between the phenomena of nature, and also to the social stresses that have developed in our civilization. We have recognized that the individual can be understood only as part of the society to which he belongs, and that society can be understood only on the basis of the interrelations of the constituent individuals. In earlier times experimental psychology was based on the assumption that the individual exists *in vacuo*, that mental activities are based essentially on the organically determined functioning of the structure of the individual. This attitude presents the most striking contrast to the more modern view, which requires an understanding of the individual, even the youngest, as reacting to its general, particularly its social, environment. The problems of the social sciences are thus easily defined. They relate to forms of reactions of individuals, singly and in groups, to outer stimuli, to their interactions among themselves, and to the social forms produced by these processes.

It is possible to isolate a number of apparently generally valid social tendencies and to study as well the

forms in which they express themselves as their psychological basis. Thus co-ordination and subordination of human beings, solidarity of the social groups and antagonism against the outsider, imitation and resistance to outside influences may be studied. The results give rise to a representation which may take the form of a system of forms developed under these stresses, or of a social psychology in which the forms are analyzed on the basis of their psychological motivation.

These attempts are based on the assumption of generally valid social tendencies. There is a question, however, that must be answered before this synthesis is attempted, namely, Which are the social tendencies that are general human characteristics? It is easy to be misled in this respect. Much of our social behavior is automatic. Some may be instinctive, that is, organically determined. Much more is based on conditioned responses, that is, determined by situations so persistently and early impressed upon us that we are no longer aware of the character of the behavior and also ordinarily unaware of the existence or possibility of a different behavior. Thus a critical examination of what is generally valid for all humanity and what is specifically valid for different cultural types comes to be a matter of great concern to students of society. This is one of the problems that induces us to lay particular stress upon the study of cultures that are historically as little as possible related to our own. Their study enables us to determine those tendencies that are common to all mankind and those belonging to specific human societies only.

Another vista opens if we ask ourselves whether the characteristics of human society are even more widely

distributed and found also in the animal world. Relations of individuals or of groups of individuals may be looked at from three points of view: relations to the organic and inorganic outer world, relations among members of the same social group, and what, for lack of a better term, may be designated as subjectively conditioned relations. I mean by this term those attitudes that arise gradually by giving values and meanings to activities, as good or bad, right or wrong, beautiful or ugly, purposive or causally determined. Relations with the organic and inorganic outer world are established primarily by the obtaining of sustenance, protection against rigor of the climate, and geographical limitations of varied kinds. The relations of members among the same social group include the relation of sexes, habits of forming social groups and their forms. Obviously, these phases of human life are shared by animals. Their food requirements are biologically determined and adjusted to the geographical environment in which they live. Acquisition and storage of food are found among animals as well as in man. The need of protection against climate and enemies is also operative in animal society, and adjustment to these needs in the form of nests or dens is common. No less are the relations between members of social groups present in animal life, for animal societies of varied structure occur. It appears, therefore, that a considerable field of social phenomena does not by any means belong to man alone but is shared by the animal world, and the question must be asked, What traits are common to human and animal societies?

The wide gulf between the social behavior of animal and of man appears only in what we call subjectively conditioned relations. Even here the gulf is not ab-

solute. Parental love, subordination of the individual to social needs, protection of individual or social property may be observed in the behavior of animals, and it does not seem possible to distinguish clearly between the psychological basis of animal and human behavior in regard to these traits. Even what we designate in human society as inventions, and enjoyment of beauty may not be entirely absent in animals.

If we say that animal behavior is largely instinctive, we mean that much of it is organically determined, not learned. Nevertheless, we do know that animals learn and certain patterns of their behavior are expressions of acquired adjustments.

The difference between human culture and animal behavior is based largely on the enormously increased number of learned adjustments, and these depend on what we have called subjectively conditioned relations. It is well to make it clear to ourselves that the objective appearance of the industries of man during the Paleolithic period gives the impression of stability through untold generations. We may infer from this that the subjectively determined attitudes were weak, that the relations to the outer world and the fixed form of social contact swayed life almost completely. The ever increasing rapidity in the rate of change that prehistoric research and knowledge of human history teach us is an expression of the increasing importance of subjectively conditioned reactions. On account of the great variety of forms that have have developed in the course of time under these stresses, the problem of what is generally human and what is characteristic of specific societies stands out as one of the greatest importance and one that requires close study.

We may observe that certain attitudes are universally

human, but that in each society they take specific forms, or that even in some societies social pressure may be so strong that the general attitude may seem to be suppressed. A serious danger lies in the methodological error of conceiving the form as indissolubly tied to the attitude. An example is presented by modesty. Certain forms of modesty occur everywhere, but they differ enormously in character. The most frequent forms of modesty relate to the behavior of bodily functions, eating, excreting, and sexual acts. It is hardly possible at the present time to determine what is the generally human basis of modesty and in how far it is a learned characteristic. There is no doubt that specific forms are culturally acquired, but there remains a generally human residue that has not yet been adequately defined. While attempts have been made in this field to separate the specific cultural from the generally human, there are many other fields in which the specific cultural character of the phenomenon is not recognized with sufficient clarity. The method of research must be based on comparisons and analogies of the phenomena in question as they appear in separate cultures.

In these investigations we must guard against a particular danger. We may find objective similarities that give a deceptive impression of identity, while actually we may have been dealing with quite distinctive phenomena. An example of this kind is presented by the widely spread adolescence ceremonies, particularly of boys, which we are apt to associate with the disturbed mental state that we know as accompanying approaching maturity. There is little doubt in my mind that the rites have nothing to do with those mental attitudes that are familiar to us in our civilization. They are

rather determined by the increasing participation of the maturing individual in tribal affairs, and that in the most varying ways. It seems quite probable that the origin of these rites must be accounted for by a great variety of social conditions. This also accounts for the great variations of age at which the rites take place, and which are not by any means always coincident with the period of approaching sexual maturity.

Attention has often been called to the danger inherent in the identification of social phenomena that we happen to classify under a single term. Goldenweiser's investigation of totemism is an example in point. The varieties of forms of maternal descent also show the possibility of the origin of analogous customs from diverse sources.

Thus the problem is often shifted from that of discovering the fundamental psychological causes of the most generalized form of behavior to another one, namely, to that of understanding why diverse psychological drives tend to develop forms that are objectively similar, or why similar forms are liable to be explained by a variety of psychic motivations.

The problems which I have treated here may seem to be rather those of social psychology and of sociology than of anthropology, but they can be solved only by the use of anthropological material.

I will turn to another question that concerns anthropology particularly, although it is not foreign to other social sciences. Sociology, if I understand its history aright, has developed through the growing recognition of the integration of culture. We have had economics, politics, pedagogy, and linguistics as individual branches of knowledge, but we had no scientific viewpoint that

treats what is common to all of them, no way of determining the interaction of these varied aspects of culture. Anthropology is still confronted by a similar difficulty. Most anthropological literature gives us information on the economic life, inventions, social structure, religious beliefs, and art of certain tribal groups as though these were so many independent units that do not influence one another. Where fuller information is available we may learn of the historic growth of all these phases of social life, of their inner development, and of outer influences that have contributed to their growth in a particular culture.

Understanding of a foreign culture can be reached only by analysis, and we are compelled to take up its various aspects successively. Furthermore, each element contains clear traces of changes that it has undergone in time. These may be due to inner forces or to the influences of foreign cultures. The full analysis must necessarily include the phases that led to its present form. I do not intend to discuss here the methods by which a partial reconstruction can be made of the history of primitive cultures that belong to people without written records and without reliable oral tradition. I will merely mention that our principal approach has been through prehistoric archaeology, through the study of geographical distribution, and through methods analogous to those so successfully applied in the study of the prehistory and history of European languages. As the last-named example shows, the analytic study of historic sequences in culture gives us first of all a history of each aspect separately: of language, of invention, economic life, social system, and religion.

This leaves us with little information regarding the

interplay of all these aspects of primitive culture, although it is obvious that relations between them must exist. The unremitting demands made upon the Eskimo hunter occupy his time so fully that no possibility exists for prolonged periods given over to festive occasions; and the necessity of moving about without other than human means of transportation restricts the amount and bulk of household property of the Bushman and Australian. A synthesis of the elements of culture must be undertaken that will give us a deeper insight into its nature.

Certain lines of inquiry have been instituted intended to explain the intricacies of cultural life as dependent upon one single set of conditions. Just at present great stress is being laid upon race as a determinant of culture. Since the ambitious attempt of Gobineau to explain national characteristics as due to racial descent, and since the recognition of the importance of heredity as determining the characteristics of each individual, the belief in hereditary, racial characteristics has gained many adherents. I do not believe that any convincing proof has ever been given of a direct relation between race and culture. It is true enough that human cultures and racial types are so distributed that every area has its own type and its own culture, but this does not prove that the one determines the forms of the other. It is equally true that every geographical area has its own geological formation and its own flora and fauna, but the geological strata do not determine directly the species of plants and animals that live there. The error of the modern theories is due largely to a faulty extension of the concept of individual heredity to that of racial heredity. Heredity acts only in lines of direct

descent. There is no unity of descent in any of the existing races, and we have no right to assume that the mental characteristics of a few selected family lines are shared by all the members of a race. On the contrary, all large races are so variable and the functional characteristics of the component hereditary lines are so diverse that similar family lines may be found in all races, particularly in all closely related local types, divisions of the same race. Hereditary characteristics when *socially* significant *have* a cultural value as in all cases of race discrimination or in those cultural conditions in which a specially gifted line is given the opportunity to impress itself upon the general culture. Any attempt to explain cultural forms on a purely biological basis is doomed to failure.

Another line of inquiry by which the attempt has been made to explain cultural forms is that of studying their relation to geographical conditions. Karl Ritter, Guyot, Ratzel, De la Blache, Jean Brunhes have devoted themselves to this problem. To the anthropologist the attempts that have been made must remain unsatisfactory. There is no doubt that the cultural life of man is in many and important ways limited by geographical conditions. The lack of vegetable products in the Arctic, the absence of stone in extended parts of South America, the dearth of water in the desert, to mention only a few outstanding facts, limit the activities of man in definite ways. On the other hand, it can also be shown that in a given culture the presence of favorable geographical conditions may serve to develop existing cultural traits. This is most clearly evident in modern civilization, in which the utilization of natural resources has been raised to a much higher degree of

perfection than in primitive life; but even in our civilization we may see that geographical conditions become operative only when cultural conditions make their utilization important. The discovery of the use of coal, the possiblity of reducing low grade ores, the discovery of applications for rare metals, the invention of paper made of wood pulp, all of these have modified our relations to our environment. No wonder that with the more limited uses to which primitive man puts the resources of nature and the greater diversity of his limited inventions, the determining influence of environment upon culture is less than it is in modern life. Environmental conditions may stimulate existing cultural activities, but they have no creative force. The most fertile soil will not create agriculture; navigable waters will not create navigation; a plentiful supply of wood will not create wooden buildings; but where agriculture, the art of navigation, and architecture exist they will be stimulated and in part molded by geographical conditions. According to the cultural possessions of people, the same environment will influence culture in diverse ways. The western plains of our country influenced the Indian in one way before he had the horse, in another way after he had acquired the horse; and again different is their influence upon the life of the modern agricultural, pastoral, or industrial settler.

Thus it is fruitless to try to explain culture in geographical terms, for we do not know of any culture that has sprung from the immediate response to geographical conditions; we know only of cultures influenced by geographical conditions. Undoubtedly the location of a people, whether placed in easy and many-sided contact with neighbors of varying culture, or whether

placed in inaccessible areas, has an important bearing upon the development of its culture; for the response to foreign stimuli, the knowledge of new ways of acting and thinking are important elements in bringing about cultural change. However, the spatial relations give only the opportunity for contact; the processes are cultural and cannot be reduced to geographical terms.

Not very different are the attempts to interpret the development of human culture in terms of economics. The early attempts of Morgan to associate social organization and economic conditions have proved to be fallacious, but more recent attempts to interpret forms of culture as due to purely economic conditions have been equally unsuccessful. The interrelations between economic conditions and culture are undoubtedly closer than those between geographical conditions and culture. One reason is that economic conditions form part of cultural life. But they are not the only determinants, they are rather both determined and determinants. Nothing in economic life will make man an agriculturalist or a herder. These arts develop from experience gained in the contact between man and plants and animals that in themselves are only indirectly related to economic conditions. Still less is it possible to explain intricate social forms, religious ideas, or art styles as brought forth by economic needs. Mental attitudes of a different order are determinants in these phases of social life. It is true, economic conditions determine the medium in which these attitudes come into play; their action may be furthered or hindered by favorable or unfavorable economic conditions; but their forms will not be so determined. When economic conditions give no leisure for industrial pursuits, artistic industry can-

not flourish; a roving life enforced by economic needs and without means of transportation forbids the accumulation of bulky property. Conversely, leisure and stability of location favor the increase of industrial production and the development of artistic industry, but they do not create the particular kind of industry nor an artistic style.

It is our general experience that attempts to develop general laws of integration of culture do not lead to significant results. We might think that religion and art are closely associated, but comparative study merely shows that art forms may be used to express religious ideas; a result that is of no particular value. In some cases the religious significance of the art product will act as a stimulant toward the development of a higher style; in other cases it will induce slovenly execution, perhaps due to the short-lived usefulness of the object. In still other cases artistic representation of religious ideas may be forbidden. Nevertheless in every specific case the particular kind of integration of art and of religion may be recognized as an important social feature. Similar observations may be made in regard to social organization and industrial activities. There is no significant law that would cover all the phases of their relations. We have simple industries and complex organization, or diverse industries and simple organization; we have occupational divisions in tribes with one-sided industry and lack of occupational divisions in tribes with diverse industries. All that can be claimed is that, with a certain amount of diversification and the necessity of production in large quantities, division of occupations becomes necessary. In short, the danger is ever present that the widest generalizations that may

be obtained by the study of cultural integration are commonplaces.

This is due to the character of the social sciences, particularly of anthropology, as historical sciences. It is often claimed as a characteristic of the *Geisteswissenschaften* that the center of investigation must be the individual case, and that the analysis of the many threads that enter into the individual case are the primary aim of research. The existence of generally valid laws can be ascertained only when all the independent series of happenings show common characteristics, and the validity of the law is always confined to the group that shows these common characteristics. As a matter of fact, this is true not only of the *Geisteswissenschaften* but of any science that deals with specific forms. The astronomer's interest lies in the actual distribution, movements, and constitution of stars, not in generalized physical and chemical laws. The geologist is concerned with the strata and movements of the earth's crust, and may recognize certain laws that are tied up with the recurrence of similar forms. No matter how much he may generalize, his generalizations will cling to certain specific forms. It is the same with the social sciences. The analysis of the phenomena is our prime object. Generalizations will be the more significant the closer we adhere to definite forms. The attempts to reduce all social phenomena to a closed system of laws applicable to each society and explaining its structure and history do not seem a promising undertaking.

These considerations lead us to another methodological problem. The attempts to correlate various aspects of culture imply the necessity of a study of the dynamics of their interrelation. The material at our disposal is

the analytic descriptions of cultural forms. This and the practical difficulties of ethnological inquiry bring it about that most of the available material is overstandardized. It is given to us as a list of inventions, institutions, and ideas, but we learn little or nothing about the way in which the individual lives under these institutions and with these inventions and ideas, nor do we know how his activities affect the cultural groups of which he is a member. Information on these points is sorely needed, for the dynamics of social life can be understood only on the basis of the reaction of the individual to the culture in which he lives and of his influence upon society. Many aspects of the problem of change of culture can be interpreted only on this basis.

It should be clearly understood that historical analysis does not help us in the solution of these questions. We may know the history of a language in greatest detail—this knowledge does not explain how the speaker who uses the language in its present form, the only one known to him, will react to its use. Knowledge of the history of Mohammedanism in Africa and its influence in the Sudan does not add a particle to an understanding of the behavior of the Negro who lives in the present culture. The existing conditions may be objectively known to us in their whole historic setting. They affect the individual who lives under them, and he affects them only as they exist today. We may gain objectively a better understanding through a knowledge of their history, but this does not concern the individual who has absorbed all the elements of his culture. If we knew the whole biological, geographical, and cultural setting of a society completely, and if we understood in detail the ways of reacting of the members of the society and

of society as a whole to these conditions, we should not need historical knowledge of the origin of the society to understand its behavior. The error of the earlier anthropology consisted in utilizing material of this kind, garnered without critical examination, for historical reconstructions. For there it has no value. An error of modern anthropology, as I see it, lies in the overemphasis on historical reconstruction, the importance of which should not be minimized, as against a penetrating study of the individual under the stress of the culture in which he lives.

RECENT TRENDS IN SOCIAL SCIENCE

BEARDSLEY RUML

The observations which I propose to make this afternoon I make as a layman, as an administrator who in the last few years has had much to do with social scientists, and very little indeed to do with social science. Accordingly, my remarks should be taken merely as the impressions of an observer of the passing show of social science as manifested by its showmen.

I have divided these observations into two parts, the first dealing with the internal situation in social science as it appears to me, and the second with the external situation as it affects and is likely to be affected by the development of social science. I hasten to add that it is not my ambition to exhaust the full possibilities represented by these headings.

One of the more interesting developments in the internal situation is the growing disposition to recognize as irrelevant and obsolete the question of whether the social sciences are really sciences, or whether after all they are not protosciences or even pseudosciences; and, if the latter, whether they may become true sciences, and what methodology and technique and apparatus will bring about most expeditiously this apparently much to be desired result.

As I say, it appears to me that, within the social sciences at any rate, these issues are rapidly becoming obsolete, if they have not already become so. This change may be due, in part, to a new confidence which social scientists feel with respect to the importance and

possibilities of their subject. In part, it may result from the compelling interest in the realistic social phenomena which are today the subject of investigation, an interest which may have caused purely epistemological dialectics to be returned, practically unharmed, to the epistemologist. At any rate there seems to have developed a matter-of-fact acceptance of genuine curiosity in the investigator searching for an understanding of the happenings called social phenomena, as an entirely legitimate basis for going ahead with social investigation. We reserve, of course, for later judgment a decision as to the merit, usefulness, and relevancy of the inquiry, but we recognize that honest curiosity, coupled with inquiry with a view to understanding, is the basis for those additions to human wisdom which we have called scientific, and we are prepared to let it go at that. To be sure, honest curiosity as a motive for research is rather rare, and even when it presumably exists this honesty is apt to be seriously compromised by a host of extraneous motivating factors, which unfortunately the academic machine does as much to foster as to destroy. Even a superficial examination may reveal the motives of the reformer, or of the individual searching for additional justification for earlier unconsidered statements, or of seekers after promotions acting under administrative pressure, or of jealousy of some colleague at the same or other institution. The latter motives are all too frequently and obviously present, and they are likely to vitiate the character of research, whether in the social field or elsewhere.

With the obsolescence of the issue as to whether social science is science, there seems to be a tendency to deplore excessive preoccupation with so-called quantita-

tive methodology. The extremes to which veneration for measurement had gone certainly called for some reaction. I have come across instances in which the selection of the problem itself had been made solely because it lent itself to quantitative treatment. Certainly this is a perversion of one of our most valuable methodological approaches. In so far as this emphasis upon measurement was due to a desire to acquire academic prestige in the eyes of what were considered higher caste scientists, the passing of interest in status is having a wholesome effect in increasing the sincerity of research. The value of descriptive analysis at the present stage of social inquiry seems to be much more generally accepted by those who have seen clearly and who have emphasized the value of quantitative methods when properly applied.

In connection with method one instance seems to me to be particularly illuminating. Today students of human behavior agree as to the tremendous importance of irrational factors in shaping the conduct of an individual. There may be some difference of opinion as to the precise weight which should be given to such factors, but that it is very large there can be no doubt. The wider acceptance of this contribution to the understanding of human behavior is nevertheless relatively recent. It has not been long since the phenomena included in the fields of history, political science, economics, and even psychology were largely interpreted in terms of human beings rationally motivated and acting for their own best interests. The shift in emphasis from rational to irrational motivation is a contribution of the first order to our understanding, and it is affecting profoundly the social sciences. And yet this new insight came

without a shred of quantitative or experimental evidence. The facts and their implications needed only to be carefully stated to be accepted by all who have studied human behavior closely.

There are several general problems which seem likely to press for solution in the near future and which will call for co-operation of social scientists and university administrators. One of these problems is the provision of a proper range of social experience during the period of training for the student who wishes to enter social science either as teacher or investigator. It is axiomatic, I suppose, that the raw data of scientific research arise from the contact of an observer with his environment. No matter what the subsequent refinements of logical, statistical, or aesthetic presentation, the impingement of the phenomenal world on the observer is the beginning of things scientific. Some progress has been made in recent years in giving to the investigator in social science better facilities for realistic contact with the raw data of his problem, but we still have a long, long way to go. Consider the educational program in chemistry or physics. The early years of training provide in a highly organized way an immediate experience for the student of the range of phenomena with which the subjects deal. A student in a brief period of time will have seen, heard, tasted, smelled, and felt a representative sample of the material world. The main facts of heat, light, sound, mass and motion, electricity, and magnetism become part of his personal life, and the new problems he states to himself and his experiential background, from which explanation and analogy can be drawn, are relatively complete. How rare the student in social science who has had a correspondingly rich

experience of the phenomenal world relevant to his interests! In social science we have been content, with relatively minor exceptions, to give the student a vicarious and not particularly well-balanced experience through reading and discussion. In order to secure a background comparable with that given in natural science, regardless of later specialization, the student would require contact with the slum, with the Gold Coast, with Bohemia, with the laborer, small merchant, and farmer. He would need direct experiences with foreign offices, with boards of directors of large and small corporations, with political committees, with trade unions. He would require an understanding of personality disorders, of the working of primitive as well as of advanced societies based on personal participation. And until this range of experience becomes his own there can be little confidence that as an investigator he will choose his problems wisely or bring to their solution the full interpretative insight required. It seems entirely probable that the amount of time necessary for such an educational program will be substantially greater than that for the training of a medical practitioner. The administrative and financial problems involved in providing thus properly for a future generation of students of society are very great, but the necessity for some thoroughgoing solution is becoming increasingly clear.

A second large group of problems includes those arising from the shifting in the traditional categories into which social science has been divided for purposes of teaching and administration. It has, of course, long been recognized that these categories represented no fundamental segregations in the world of experience,

but there was no pressing need for change and vested academic interests were very strong. Now with the new impetus for research based on an immediate and realistic experience of social phenomena, the categories are crumbling or are being pushed aside. I do not mean to imply that we have a new and coherent conception of social science which has superseded the anachronistic categories of history, economics, sociology, psychology, and so forth. Far from it. But investigators are finding the existing divisions sterile, and tendencies toward further subdivision and isolation are looked upon with a new distrust and with profound misgivings. Questions are raised with increasing persistence as to the function and usefulness of the professional societies; to what extent do they stimulate a trade union consciousness; to what extent are they utilized as a vehicle for sectarian politics; to what extent do they really do more harm than good scientifically? The meetings of the societies are defended on the most trivial grounds of sociability, and the activity in publishing journals on the ground that no one else has been found to do it. The societies themselves are aware of their inadequacy individually to meet the demands arising from the new orientation in social science, and many steps have been taken by the societies individually and collectively to facilitate the development of social science as a whole. Unfortunately, the power of inertia is very great, and I think we must recognize that within the societies on the whole the forces tending to make for separation and isolation are stronger than those which are contributing toward the evolution of greater flexibility and interdependence.

There is little difficulty in this disturbance within the traditional categories for the individual scientist. He

needs merely to carry on his investigations wherever they may lead him, and he may be able to derive some comfort from the fact that he is less likely now than previously to be criticized for getting out of his field. But for the administrators of universities the problems will be both serious and a trifle burlesque. What about courses? What about budgets? What about department heads? And promotions? And titles? Who will certify as to the competence of the proposed new appointee? What will other people think?

A third development of great interest will take place in the relations of the essentially humanistic phases of the social studies to the essentially scientific or objective phases. There exists at the present time a strong and an increasing emphasis on a point of view in social research that seeks to eliminate the motive of social reform and betterment, and that views social phenomena as complex behavior of a naturalistic world. The interest of the investigator is centered simply on an understanding of social events, and he attempts to eliminate judgments of value and as far as possible the presence of any ethical bias. This tendency toward an emphasis on objectivity is no doubt on the whole one of the more hopeful signs in social research today, but we should be under no misapprehension that this scientific attack exhausts the possibilities in the study of social problems. There remains for analysis and discussion the whole range of questions dealing with human values, with what is worth while, with the purposes to which further control of social and physical forces may be directed. It is important that we should understand clearly the ideas that other men in other times and places have had on the persistent problems of human

values. It is important that these ideas be criticized, compared, sharpened; that new ideas be generated, ideas that grow out of reflective thinking, which utilizes the rapidly accumulating results of science and scholarship.

It is a sound instinct which causes the social scientist to avoid the humanistic approach in the statement and study of problems requiring scientific analysis, and to deplore the presence of the humanistic bias when it creeps in to vitiate what purports to be objective analysis of social behavior. On the other hand, as an educator and as a human being he will recognize the value of humanistic inquiry and will support it in an important place in our educational institutions.

The working out of this situation will necessitate various readjustments in the present organization of academic institutions with respect to social teaching and social research, and many decisions of far-reaching significance must be made. Either the humanistic interests of social studies will have to be developed in close administrative and intellectual association with the social sciences, or these humanistic interests must be segregated to provide a new element and perhaps a new impetus to the general humanistic program of the university. It is far from clear which alternative is to be preferred, but this at least seems evident, that a prompt decision is called for. Neither the scientific nor the humanistic approach can prosper, or can make the contribution which we may hopefully expect, in the air of confused suspicion which characterizes the situation today.

Turning now from the internal to the external relationships of social science, we find a number of trends which give cause for great satisfaction and for a sub-

stantial feeling of responsibility as well. For whether the social scientist wishes it or not, he is being asked by the world to make the contribution to a better social understanding which the world expects.

In education the increased interest in social science in the last ten years is substantial and is to be found both in the United States and abroad. Important new research institutions have arisen, small and struggling ventures have grown to large proportions, and the already established institutions have been pressed with demands for teaching and research. In a decade of great financial readjustment, educational administrators have responded with sympathy and with effective action to this new interest in social science, even though there were plenty of old problems crying for solution.

At the lower educational levels, in the secondary and even in the elementary schools, the pressure for teaching, and for teaching materials based on social studies, is becoming increasingly insistent. The more progressive schools have altered drastically the pre-war curriculum, and general investigations are under way that are destined to affect the curriculum of the educational system as a whole. These movements are perhaps more violent than they are coherent, and the extent of collaboration between the public school man and the social scientist leaves something to be desired. The development, however, is well under way, and certain consequences can be foreseen. The first is a changed preparation for the study of social problems at the higher educational levels. A second is an improved public understanding and sympathy with fundamental social research. A third is a re-enforcement of the trend toward unification of the social sciences.

In the world of affairs there is a sharpening of interest

in the technological applications of social science. This interest has been widely felt and in many cases deplored. It has taken many men from research to business and to consulting work. It has been a drain on the time of university men who have been made to feel a responsibility for service to the university's supporting constituency. On the other hand, it has opened channels of investigation which had hitherto been closed, and has given a technological outlet for many aspirants to social research who failed to show the spark of a creative scientific mind. And of course it has greatly improved the position of social science within the universities, since it is well recognized that a few conspicuous contributions of a practical character are justification to an indulgent public for supporting generously much research which is to it, perhaps fortunately, obscure.

A word should be said specifically concerning the relations of social science to public administration and to public administrators. The management of public affairs is rapidly becoming definitely technical, and high administrative officers and commissions are coming to depend on studies, and on information and advice from social scientists, just as they depend on the expert services of engineers. The governors of states are beginning to expect enlightenment from the social science departments of their state universities, and although there is understandable hesitancy on the part of some state university presidents in becoming involved in what they conceive to be politics, the movement in this direction is likely to be irresistible. We have had and shall have demonstrations that will point the way; and the obvious mutually helpful relations between social science and public administration will establish relationships of

great value both for science and for the public welfare.

One external factor of recent importance has been the interest which the various philanthropic foundations have taken in the advancement of social science and social research. The Russell Sage Foundation has been in the field for some time both as a contributor and as an investigator on its own account. The Carnegie Corporation is identified with many important enterprises in social science, among which of great interest to this group are the Food Research Institute at Stanford University and the Brookings Institution in Washington. Although its primary interests lie elsewhere, the Commonwealth Fund participated with the Russell Sage Foundation, the Carnegie Corporation, and the Laura Spelman Rockefeller Memorial in early financing of the administrative budget of the Social Science Research Council. The Rosenwald Fund, more recently in the field, has indicated an interest in social research, and it, too, is co-operating with the Social Science Research Council. The Laura Spelman Rockefeller Memorial, with which I am most familiar, in the period from 1923 through 1928 appropriated $25,200,000 for the promotion of social science, and the continuance and extension of this interest has been assumed as a major program by the Rockefeller Foundation, with which the Memorial was consolidated at the beginning of 1929. While these sums are perhaps not large in comparison with aggregate world-expenditures for social science, they nevertheless represent a new margin of resources which has had and will have a stimulating effect. It is also encouraging to note that this support has been given and received with continuing good will on both

sides, and with general public understanding of the disinterested scientific character of this attempt to contribute to the solution of problems fundamental to our social well-being.

In conclusion, a word should be said with reference to the implications for international relations of this increasing interest in social research. This development is by no means a purely American development. In varying degrees it exists the world over. In England, Germany, France, the Scandinavian countries, at the seat of the League of Nations, in the Pacific basin, there has already been a definite quickening in social science, and elsewhere the signs point in the same direction. Again, in varying degrees, the emphasis is on the scientific approach, on objectivity, and this emphasis may be expected to increase. Funds have been made available from many sources to permit students and professors to travel from one country to another. At a few points great research institutions are developing and conscientious efforts are being made to permit frequent and friendly contacts among these national institutions for social research. Investigations have been launched on a world-wide basis utilizing an international personnel.

Inconspicuous as these tendencies have been in comparison with recent dramatic efforts to secure orderliness in world-relationships, it is not improbable that over a period of time this movement in social science will be recognized as of comparable significance. It seems evident that these tendencies portend the development of an internationally minded group of students of social problems. These men will view international society with a new objectivity. They will be dominated by an honest curiosity as to how it works, when it works, and

as to what makes it break down. And as the results of their researches, as their point of view becomes the intellectual property of greater numbers of men, there will have been created an important antidote for prejudice and irrationality in the relations among the people occupying the various political subdivisions of the world.

The institution which is our host today, and the building for social research which it is dedicating, are obviously important elements in determining the evolution of the social sciences. We offer to the University our heartiest congratulations, and shall watch with keen interest the contribution which it is destined to make to our understanding of social relationships and to the advancement of the public good.

THE SCIENTIFIC STUDY OF MAN AND THE HUMANITIES

C. JUDSON HERRICK

When it was suggested that I, an anatomist, come before this group to discuss the relationships of the social sciences, the question naturally arose, Why should I? What do I know about it? The second question answers itself—nothing at all. The social sciences—why, sir, I do not even know their names.

These relationships of the social sciences, however, really do intrigue me—the rich relations, on one hand, and the poor relations, on the other. The geographical location of this new and beautifully appointed building has some interesting implications—the imposing façade, looking out upon the broad expanse of the Midway, flanked on one side by belles lettres and on the other by beauty incarnate, by the fine arts, and by the aspirations of religion.

These are our rich relations, and proud of them we have reason to be. Then there is Commerce and Administration, toying with vested wealth and the luxuries and satisfactions which it brings, and at the same time paying its respects to the grimy sweat of toil. Again, there is Social Service, reaching out a helping hand to other of our poor relations, misfortune, poverty, delinquency, and crime. To say nothing of Politics, which is too often at once rich in worldly goods and despicably poor in spiritual values.

But I cannot discuss these things. If I were to try to talk your language, I should only add to your dreary

sciences more dull and empty words. True, we do not need to go outside the University to observe that caliginous ignorance is no bar to a plethoric flow of words. There are ample precedents. But I prefer to talk about something that we are all familiar with.

I would like, for instance, to say something about Humpty-Dumpty and his Great Wall; but the dignitaries in charge of these ceremonies frowned upon this and a more banal title was announced. But, really, I do want to talk about the Great Wall, and I propose to do it. Let the dignitaries howl.

Knowing no sociology, I shall recount a fable for sociologists.

> Humpty-Dumpty sat on a wall;
> Humpty-Dumpty had a great fall;
> And all the king's horses and all the king's men
> Could not put Humpty-Dumpty together again.

This is the story—brief, graphic. My researches have not penetrated far into the history of this legend. We know nothing regarding the personality and other achievements of Humpty-Dumpty previous to his great adventure. The archaeologists, so far as I know, have not uncovered even the foundation stones of his Great Wall. Yet the tradition lives and its influence abides with us, as does that of all the great of old—

> The dead but sceptered sovereigns
> Who still rule our spirits from the tomb.

We need no archaeologist to locate the Great Wall in its modern form. We have it on our campus. It stretches, vast and impenetrable, from east to west across the main quadrangle. It is invisible, to be sure, but one has only to stand on Fifty-eighth Street and look across the quadrangle to see where it is. To the

south there are the homes of the humanities in imposing array, to the north the massive laboratories of the natural sciences, and between them a wide expanse of—nothing at all.

What means this gap? It is not empty space. It is, in fact, a mighty barrier, slowly and unwittingly fabricated from the founding of the University—the ill-concealed antipathy between the humanities and the sciences.

It is of no avail to deny its reality. Close our eyes to it though we may, it still is there—if not distrust, certainly a lack of sympathetic understanding and ability, with the best of intention, to effect unhampered co-operation.

Within our short history, the barrier has been passed by hardy adventurers on several occasions. Years ago the Department of Psychology emancipated itself from Philosophy and, flanking the wall, took its place on the north side among the natural sciences, claiming the right to study mind as a natural phenomenon and validating the claim by doing it successfully. More recently Anthropology has followed from your own midst and is now safely, though meagerly, housed in Hull Court. And only last summer another of your departments brazenly walked across the campus—house and all—from under the shadow of Art and Divinity to find asylum in a quiet nook behind the power-house. There has been, within our recollection, no similar migration in the opposite direction. And this, perhaps, is a pity.

These centrifugal movements, coming contemporaneously with the dedication of this new laboratory of the social sciences in the very heart of the citadel of the

humanities, inevitably raise the questions, Where do the social sciences belong in an academic organization? and, What is a social science anyway?

An ancient teacher once said, "If a house be divided against itself, that house cannot stand." This has a personal application: "No man can serve two masters." A more modern philosopher has remarked that it is impossible to live in two unrelated worlds at once.

To an ignorant outsider it looks a little as if the social sciences may be in some danger of attempting this impossible acrobatic feat. The Great Wall stands today on our campus as a barrier between the natural sciences, whose domain is the world of objects, and the humanities, whose domain is the world of spiritual values. Are the social sciences to remain dispersed on opposite sides of the Great Wall, or is the group as a whole to attempt to maintain a precarious balance astride the Wall, with one foot in the Elysian fields of the humanities and the other solidly resting on the firm ground of scientifically controlled factual data? The available precedents indicate that neither of these alternatives will give a stable organization. The thing is likely to fall to pieces, one way or another. And this is not a trivial matter; it strikes down to the very soil within which are the roots of our university development, the original sources of academic achievement.

Traditionally, our social sciences are aligned with the humanities. And they must maintain this alliance with the realm of spiritual values and experiences if they are to be humanitarian in any proper sense. Traditionally, also, the natural and exact sciences, whose tools the social sciences are employing with increasing efficiency, are uncontaminated by spiritual values, by human

emotion, sentiment, or any subjective coloring. We are face to face with a rather appalling dilemma.

A few years ago, Mr. Merriam will remember, I sat for a week at one of the Hanover conferences with the Committee on Methodology in the Social Sciences. I was, fortunately, not a member of the Committee, but merely an uninvited guest, an interested spectator. My only part was to be seen, not heard. The Committee, I presume, has by this time disbanded, and now I may speak and confide to you that their deliberations left me—and I suspect some of them—in a mood of deep dejection.

Here were representative leaders of research in fields that embrace the sources of human welfare and human happiness more directly than any others—except perhaps medicine and hygiene—who were unable to agree upon any formulation of problems or any program of research which struck down to the roots of the motivation of human behavior with technique that by any stretch of current usage can be called scientific.

It was agreed that certain tools of scientific research—mathematical formulas, statistics, and so on—can be applied to the study of the objective results of human behavior and that these data can be treated scientifically. But many of them seemed to feel that the motivating causes of this behavior—people's desires, aversions, loves, and hates—belong in a spiritual realm on the other side of the great barrier and are forever inaccessible to scientific study.

The methodology of the social sciences, accordingly, resolves itself into a program of improvement in the techniques of recording and analyzing what people do in their social relations. It can have no bearing on

changing the course of human events except in so far as human conduct can be guided or restrained by external agents, as children may be compelled to go to school and as their parents may be put in jail if they don't. Any attempt to control the fundamental motivating forces of the child himself—to get him to want to go to school —lies beyond the scope of social or any other science.

On this view of the situation, human social activities can be treated scientifically in no other way than can poetic composition. The divine fire of poetic inspiration comes, we know not how; we have no scientific formula for it. When the poet comes to record his passion, he may use a fountain pen or a typewriter—a scientifically constructed mechanism. Shall we say, then, that the methodology of the science of poesy consists in the improvement of typewriters? No, we frankly admit that writing poetry is not (as yet) a scientific enterprise.

Are the social sciences, as sciences, any better off today? This is a searching question and a practical one.

The newborn social sciences—are they live disciplines or dead ones? Their tools, questionnaires, statistics, and so on are as dead as the anatomist's scalpel and microscope. They must study the results of social activity, production and transportation, organization of social units, legal enactments, and the like, just as the anatomist studies a cadaver, which is a result of living. Do they rest there, with their statistics, codes, and laws, or do they go on to the study of social forces *in process* as part of human living? The answer to this question will decide whether the social sciences are to die aborning.

I do not mean to imply that we should not collect

statistics and analyze costs, any more than I would imply that anatomists should cease to dissect dead bodies. Whether these are appropriate things to do in a university depends on what we do them for.

Anatomy is the oldest of the biological sciences. Not long ago it was thought to have reached the age of senile decay, and preparations were made for suitable interment. Then suddenly within our own memory a miracle happened, the old science was rejuvenated, and today it is as lively as any of them. The breath of life that was breathed into this valley of dry bones was the simple realization that our interest in dead bodies is only for the light which they shed upon live ones, what they do and how they do it. Today there are more live experimental animals in the anatomical laboratory than dead bodies. It is the vital process in which we are interested.

You have a journal named *Social Forces.* What are these forces? External influence of climate and geography and pressure of populations? Yes, these are factors in human conduct. Internal drives and intuitive impulses, shaped by heredity and innate organization? Yes, again, these also influence conduct.

When these are learned and reduced to rule, is the program complete? Are social movements irrevocably determined by these forces of heredity and environment? Have we left out anything? I say, yes, we have left out the key to our fundamental problem—the control of social movements and of human destiny. Is this key to human motivation locked up out of reach of scientific inquiry in some mystic realm of spiritual essence on the other side of the great barrier between the physical life and the spiritual life?

If the great underlying social forces, the mainsprings

of human motivation, are outside the realm of natural law and therefore inaccessible with the technique of natural science, then I affirm that the social sciences are misnamed. They are pseudosciences, and the whole movement is a stupendous bluff.

If this is the way things really are, I have some practical suggestions. Let us dismantle this new building, move the adding machines and files across campus, and rededicate this house as a Temple of Social Graces. Or else let us put the whole building on skids and move it bodily to some other convenient niche behind the power-house. Two horses and a windlass will do the trick, as was proved to us last summer.

I am not jesting; never was more serious in my life. If the social sciences attempt to straddle the Great Wall which until now has separated the humanities and the natural sciences, they will fall. That is not a practicable enterprise.

But perhaps the prognosis is not so bad after all. Let us look at this Great Wall again.

When I was a child one of my duties was to bring in the cow from the pasture at milking time. One evening toward sunset she ran up to the barn door, whiffed the steaming bran mash in her manger, but refused to enter. Peering past her, I saw a beam of the setting sun streaming through a crack just inside the door. The dancing motes made a visible barrier which bossie was afraid to cross. After a little persuasion from my switch, she backed away, got a good running start, and by supreme effort cleared the hurdle with a flying jump.

Perhaps the Great Wall that stretches across our quadrangles is naught but motes illumined by the setting sun of bygone traditions. Perhaps we have been

shying at shadows cast, not by the "irreducible and stubborn facts" of experience, but by ghosts and phantasmagoria of mythology. Is this spiritual life of ours, which we rightly cherish as the highest efflorescence of our humanity, really so detached from the rest of our life that we must keep it corked up in a vacuum bottle? Or is all life natural life—the best of it as well as the worst of it—and so a legitimate object of scientific study?

If we think with our brains and if we love and hate with these and with our hearts and ductless glands—and the evidence is perfectly clear that we do just this—then brains and hearts and glands can be studied, and they can be studied in action while we think and love and hate. Without following this up into details, this common sense and also strictly scientific approach to human life and experience will inevitably demolish completely the mythical impenetrable barrier between the objective and the subjective worlds of experience. It is one world in which we live and have our being and of which we are parts, and all of it and all of us can be investigated scientifically as fast as we learn how.

The economist studies values, and he is the first to proclaim that the commodities, coins, and securities with which he deals are only the symbols or indicators of the real values. The true value is an intimate personal and subjective experience—what I want and work for. Without these motivating desires and satisfactions, goods and dollars and mortgages are trash.

An essential condition of control of social movements lies in our ability to control people's motivating desires, their wants, fears, hopes, and aspirations. Is this a scientific problem? It is, if these spiritual experiences

are real natural events in a real natural world. There is a natural apparatus of aesthetic appreciation as truly as there is a natural mechanism that creates a glorious sunset or a so-called artificial machine that prints a picture of it.

Economics will not be less scientific when we supplement our statistics by the recognition of the actual causal efficiency in social movements of personal passions—loves and hates and ideals. And economy will not be more painful when we reinforce our desires and aversions with scientific knowledge of the technique and motivation of them.

Human conduct does not float free in a vacuum. It works with machinery, some of which is familiar to everybody—tools of manufacture and transportation, mediums of exchange, social organizations, boards of trade, clearing houses, and the like. The spiritual life, too, has its tools—books, libraries, musical instruments, works of art, literary guilds, churches, charities.

And the life of the spirit has other tools that are inside of us. Some day we shall know enough about these to get them under better control. It is true that an individual personal passion cannot be an object of scientific research as an isolated subjective event. But every subjective experience is related with other things —the mental and physical causes of the experience and its mental and physical consequences—and these relationships can be studied with our present scientific technique. The study of relationships is the essence of scientific method.

Our plea for a scientific study of values, appreciations, and spiritual experiences in general does not carry with it the implication that such studies are to *replace*

our traditional humanistic treatment of these noblest human attributes. Quite the contrary, we naturalists and human biologists hope to reinforce, to clarify, and to refine these spiritual values and give to our colleagues in the humanities better tools with which to work in their own fields and in their own ways. For after all our aims are the same. It is the same humanity whose life we strive to enrich and to ennoble.

This, then, is our outlook for the social sciences as sciences of man—a unified attack upon the whole field of human achievement and human experience by such scientific methods as are available and the invention of new methods as new needs arise.

It is granted that we have made but slow progress so far in the scientific study of spiritual values. But have we really tried? Has not our attack on the crucial questions been inhibited or deflected by an ancient dogma that natural science is impotent here, just where we need it most—in the field of human motivation?

True, we do not yet know just how to go about it. But that is no reason why we should not find out. That is what a university is for—to find out things. And we shall never find out so long as we are ruled by the dogma that physical and spiritual belong to two unrelated worlds separated by a metaphysical barrier. This Great Wall, I verily believe, is now the most formidable obstacle to progress in the social sciences and in all other fields devoted to the scientific study of man.

Like Carthage, the Great Wall must be totally destroyed. Halfway measures will not do. The barrier between man's spiritual life, which comes to highest expression in his social reactions, and the rest of his life is an artifact, nay, a monstrosity, conceived in ignorance, born of superstition, nourished by intolerance.

WHAT IS SCIENCE?[1]

EDWIN B. WILSON

We have just assisted at a dual celebration in this great University. There have been dedicated to the service of science two magnificent structures—one in supplement to the existing chemical laboratory from which have issued many brilliant investigations, the other to furnish for the first time here or elsewhere a laboratory in which the social sciences may unite in carrying forward their work with adequate equipment. This occasion may seem particularly appropriate for considering the question, What is science?

Is there anything which is common to chemistry and to sociology, or at any rate is there enough which is common to justify the application of the common designation science? The burden of proof that there is must lie upon the social scientist. It is he who has in recent years adopted the name from those subjects to which it has long been applied with definite significance. Has he adopted it merely to gain some unearned advantage from the present popularity of the natural sciences in the public mind? Or, with a pardonable if unhappy frailness of nature, has he deluded himself or may he be unworthily trying to delude others into attributing to his interests in learning a quality of definiteness which they really lack?

[1] An address delivered in the University Chapel on the occasion of the One Hundred Fifty-Eighth Convocation of the University, December 17, 1929.

Such queries have often been raised by the natural scientist. They have also been raised by students of social phenomena who honestly believe that their studies cannot be and should not be scientific, who feel that most of the interests of life are not subject to scientific canons and that it is more humanizing, more in harmony with our cultural needs to make no attempt to render the humanities scientific but frankly to pursue them in literary fashion as exercises for the emotions or sympathies of mankind. There is talk of the cold, harsh sciences in contrast with the warm and pleasant humanistic studies; there is the sad picture drawn of the peaked, angular scientist peering into drab test tubes, while the gentle, lovable, well-rounded figure of the social philosopher, sitting by the fireside, composes from his profound knowledge of human nature works for the spiritual sustenance of his less fortunate fellows. How would this prophet work, and how might he not suffer surrounded by tier on tier of cabinets and drawers for filing maps, of index systems for displaying facts, of noisy sorting machines for obtaining tabulations, and of perfectly horrid batteries of calculating machines for doing a lot of dirty arithmetic? The fact is that he would not work and that he would suffer under such conditions as are furnished in your new social science building, though he might find some little solace in the Common Room.

There have been many definitions of science—telling us what it is and what it is not. There is no hard and fast agreement even among the most rigorous and restricted scientists as to what science is and what it is not. Although I shall not undertake on this occasion to give any definitions, I should like to point out some

considerations. Possibly I might begin by directing your attention to the treatment of science by one of your distinguished colleagues, C. H. Judd, in the fifteenth chapter of his book, *The Psychology of Social Institutions*, wherein he claims that science is itself a social institution, a method of thinking which the race has evolved through a long period, but most rapidly within relatively recent times, as an aid in their adaptation to their environment. The natural scientist very naturally thinks of the environment as all of nature except human nature. Why he so persistently shuts himself and his fellows out of his picture I do not know, nor presumably does he. The psychoanalyst could probably assign a reason for this exclusion—possibly not a true reason but perchance one of sufficient impropriety to be interesting.

Whether the natural scientist would follow Professor Judd all the way in his argument is debatable, but that science is largely a social institution has been recognized, though differently stated, for some time. One fundamental scientific canon is that of the corroboration or verification of the work of one investigator by the work of another. We do not always take the trouble actually to verify work done; we accept much, and rightly so, on faith because of our confidence in the investigator's honesty, our satisfaction with his technical qualifications, and our knowledge of the reliability of his past performances. But that the principle of verifiability is at the basis of our considerations of scientific validity can be seen at once if we raise the question, What if two equally trustworthy investigators obtain results which do not accord? We admit immediately that though each result is the work of a scientist, neither is assured

as an element of science, and that more study is necessary. In the older disciplines this is well recognized. If two mathematicians have proved contradictory theorems, they are themselves the first to acknowledge the need of carefully and painstakingly going over the ground to eliminate the discrepancies. So in physics or chemistry one investigator does not become put out with a colleague who cannot reach the same results—each tries patiently to help the other. This is the true spirit of scientific investigation, a co-operation toward intelligent agreement. That is why we have faith in science; but this is surely a social phenomenon, two or more persons are coming into mutual accordance. In the process emotions may be somewhat disturbed, but the emotional disturbance is recognized as a personal limitation of the investigator and not germane, but rather foreign to the scientific question and hostile to its prompt adjudication. To make accord easier and misunderstanding less frequent, great attention is given in science to careful definition of terms and care is observed by every investigator to use the same technical terms in the same sense, albeit this sense may be materially different from that in which the same word is used in common speech. Often only a most critical survey of facts will make it possible to render some technical term sufficiently precise in its meaning to be safely used for scientific purposes.

The public little realizes the patience needed in research, the slow winnings of first one point of view and then another, the painstaking codification of findings into a consistent whole, the suggestiveness of outstanding differences which are indicative not so much of scientific accomplishment as of ground yet to be won.

The publicity which is now being given to scientific findings or announcements in the daily press may well be more of an embarrassment than of an aid to science and to scientists. I may refer, not alone to the publicity in respect to results which are uncorroborated, and which easily may be controverted later, much to the public bewilderment if not disgust, but to items posing in our newspapers as science though really not any part of science at all, as when you read a column on the epoch-making discovery of the great savant Professor Schmierkaese, of lower Austria, in isolating the pathogenic organism of love and in proving that the disorder is, in its clinical course, extremely like measles.

When we turn to the social disciplines, we may well find it more difficult to come to an agreement on facts, to a common understanding on terms, and to an unemotional exploration of differences between investigators. There has been so much dialectic in social philosophy, there has even been, perhaps all unconsciously, so much affliction with the *habile ruses* of the debater, so much brilliant thrust and parry with words, that it is hard to settle down, and we may be slow in settling down to the patient attitude of scientists willing to work long to discover that on which we can come to accord. The movement toward social science, however, comes precisely in recognition, now somewhat widespread and particularly well developed here at Chicago, of the absolute necessity of proceeding with less reliance on mere opinion, with less confusion by emotion to the determination of fact and of definition in the whole social field.

The University will have patience with its patient men and, fortunately for both, the scientific discoveries

that may be made here or elsewhere in the social disciplines in the next decades will be unlikely to be of the simple, definite sort that will have immediate publicity value. We do not expect that the etiological agents of our social disorders are so simple as bacteria or of any sort from which serums may be developed for curative injection into a passive body politic. It is altogether likely that with the increase of knowledge there will come indications of the way in which that knowledge may be applied. Indeed, one may safely venture the opinion that already more well-established knowledge has been developed in the social sciences than is actually applied for the amelioration of our social conditions. Knowledge and the application thereof do not always march truly hand in hand, partly because the people's habits of action and of thought may require considerable time for reorientation or re-education. And long before the people can be expected to come to that faith in the scientific accuracy and completeness of the social knowledge developed by our experts which will encourage them to adopt that knowledge in their everyday life as readily as they now adopt a new appliance, you will have dedicated the new physical laboratory now under construction and have erected the oriental institution across the way and put it to the prosecution of its scientific studies.

And what is science? A body of corroborated fact? Yes, truly. And scientific theory a body of co-ordinated facts. But, more essentially, science is a co-operative effort toward a united understanding, it is an eternal future, an everlasting hope. In none of these, its really fundamental characteristics, is there any difference between one science and another, between chemistry and

sociology, between physics and ethnology. It is one of the foremost obligations of a university staff to see that the young persons who are graduated after a period of study in the university realize so fully that they carry with them throughout their lives a just opinion of what science is both in its accomplishments and in its limitations. We cannot live adequately without an adequate science, but we cannot live by science alone; of both these propositions every graduate of this institution has had a fair chance to become aware.

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